PHARMAKO DYNAMIS

STIMULATING PLANTS, POTIONS & HERBCRAFT

EXCITANTIA AND EMPATHOGENICA

DALE PENDELL

$35.00

This is the second volume of North Atlantic Books' hard cover edition of Dale Pendell's *Pharmako* trilogy, an encyclopedic study of the history and uses of psychoactive plants and related synthetics first published between 1995 and 2005. The books form an interrelated suite of works that provide the reader with a unique, reliable, and often personal immersion in this medically, culturally, and spiritually fascinating subject. All three books are beautifully designed and illustrated, and are written with unparalleled authority, erudition, playfulness, and range.

Pharmako/Dynamis: Stimulating Plants, Potions, and Herbcraft focuses on stimulants (including coffee, tea, chocolate, and coca and its derivatives) and empathogens (notably Ecstasy). Each substance is explored in detail, not only with information on its history, pharmacology, preparation, and cultural and esoteric correspondences, but also the subtleties of each plant's effect on consciousness in a way that only poets can do. The whole concoction is sprinkled with abundant quotations from famous writers, creating a literary brew as intoxicating as its subject.

The *Pharmako* series also includes *Pharmako/Poeia* (which covers tobacco, alcohol, cannabis, opiates, salvia divinorum, and other substances) and *Pharmako/Gnosis* (which addresses psychedelics and shamanic plants).

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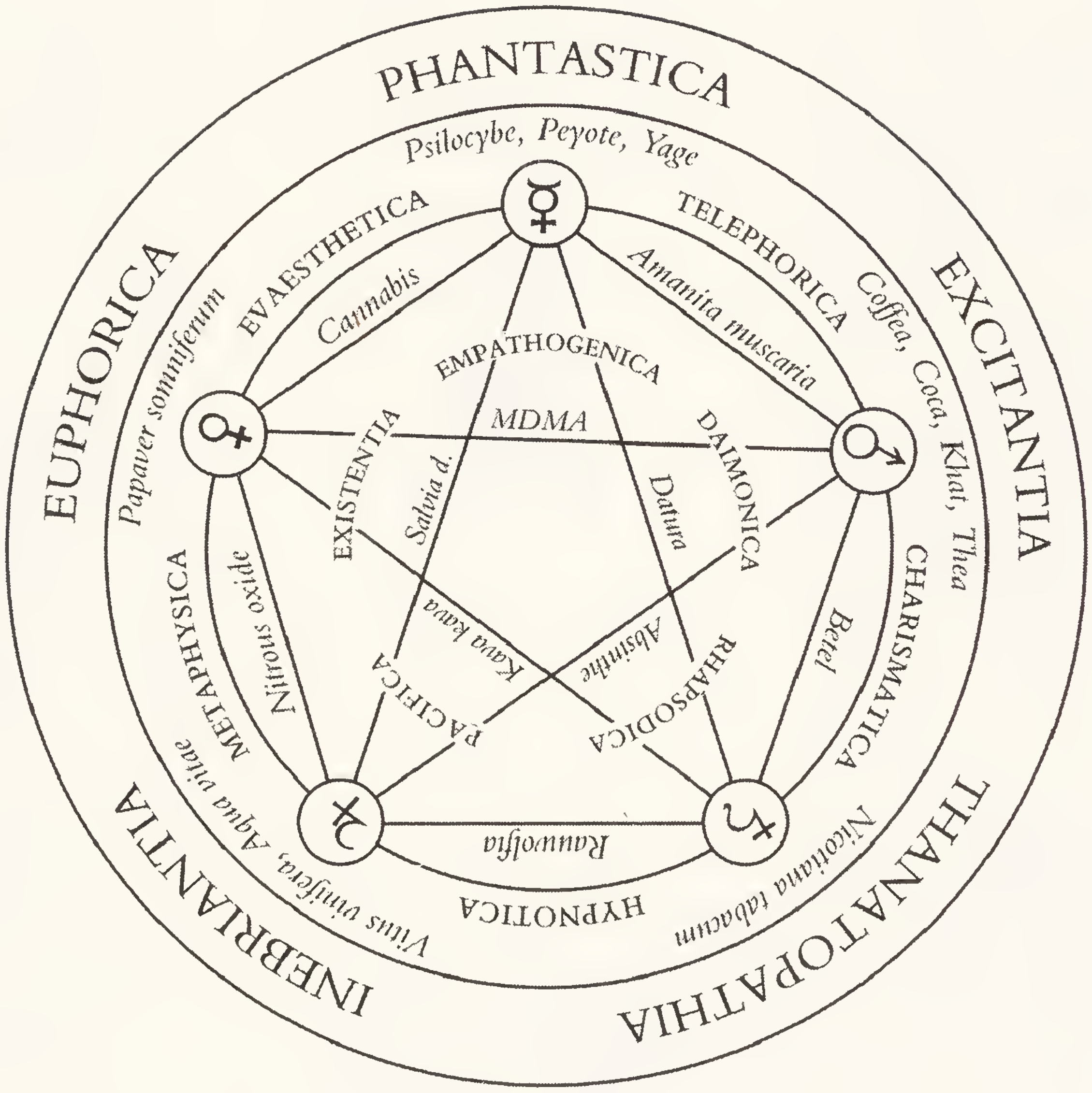
PHANTASTICA
Psilocybe, Peyote, Yage
EXCITANTIA
Coffea, Coca, Khat, Thea
THANATOPATHIA
Nicotiana tabacum
INEBRIANTIA
Vitus vinifera, Aqua vitae
EUPHORICA
Papaver somniferum
TELEPHORICA
Amanita muscaria
CHARISMATICA
Betel
HYPNOTICA
Rauwolfia
METAPHYSICA
Nitrous oxide
EVAESTHETICA
Cannabis
EMPATHOGENICA
MDMA
DAIMONICA
Datura
RHAPSODICA
Absinthe
PACIFICA
Kava kava
EXISTENTIA
Salvia d.
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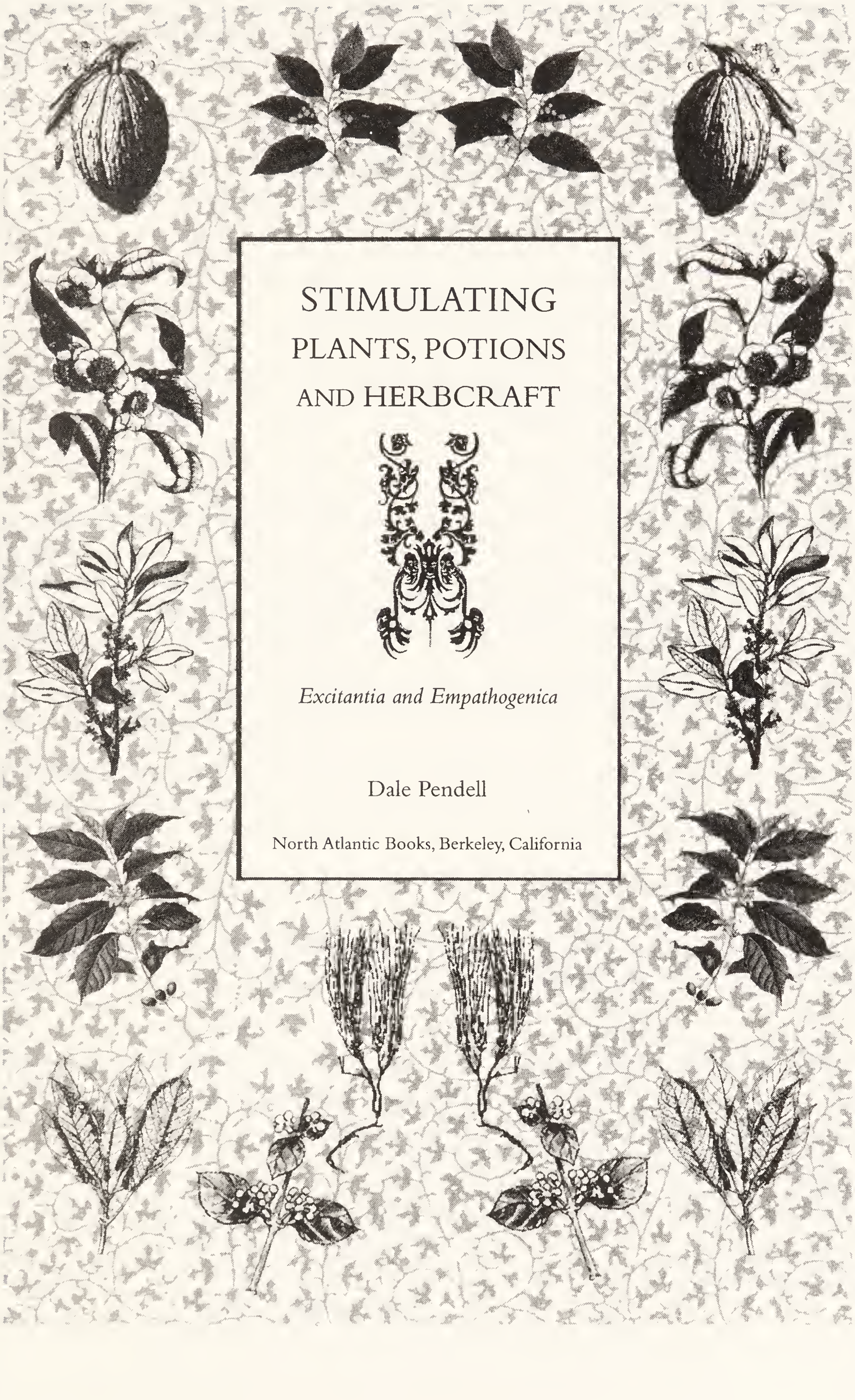
PHARMAKODYNAMIS



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Excitantia and Empathogenica

Dale Pendell

North Atlantic Books, Berkeley, California

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Published by
North Atlantic Books
P.O. Box 12327
Berkeley, California 94712

First published in 2002 by Mercury House, San Francisco
Cover illustration from *Charta Lusoria,* Jost Amman, 1588
Cover design by Thomas Christensen
Interior design, art direction, and typesetting by Thomas Christensen and Jeremy Bigalke
Additional art research by Thomas Appèl-Braun.
Index by Michael Brackney
Printed in the United States of America

Pharmako/Dynamis: Stimulating Plants, Potions, and Herbcraft is sponsored by the Society for the Study of Native Arts and Sciences, a nonprofit educational corporation whose goals are to develop an educational and cross-cultural perspective linking various scientific, social, and artistic fields; to nurture a holistic view of arts, sciences, humanities, and healing; and to publish and distribute literature on the relationship of mind, body, and nature.

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Library of Congress Cataloging-in-Publication Data
Pendell, Dale, 1947-
Pharmako/dynamis : stimulating plants, potions, and herbcraft : excitantia and empathogenica / by Dale Pendell. — [New ed.]
p. cm.
Originally published: 2002.
Summary: "Pharmako/Dynamis: Stimulating Plants, Potions, and Herbcraft focuses on stimulants (including coffee, tea, chocolate, and coca and its derivatives) and empathogens (notably Ecstasy)"—Provided by publisher.
Includes bibliographical references and index.
ISBN 978-1-55643-888-2
1. Materia medica, Vegetable. 2. Psychotropic plants. 3. Poisonous plants. I. Title.
RS164.P446 2009
615'.321—dc22

2009024629

1 2 3 4 5 6 7 8 9 SHERIDAN 14 13 12 11 10 09

Publisher's Note: A manuscript draft of *Pharmako/Dynamis* caused us some concern. The author of this remarkable work was clearly exploring perilous terrain along his "Poison Path." This is a route we strongly advise others not to follow (except through this book, and through other approaches that lead in the direction of wisdom without dangerous self-experimentation).

Did we detect a tongue-in-cheek quality in the manuscript? We could see the depth of botanical knowledge, the extensive scholarly research, the learning, the results of years of alchemical practice and dedicated experience, the poetic beauty, the ingenuity of subtly shifting interior dialogues, the peculiar fascination of strange, beguiling perspectives, the dark wizardry of its authorial persona (wise but not without a hint of menace)…

Pharmako/Dynamis makes a contribution to modern poetics and cross-disciplinary study, in the distinguished tradition of the botanical herbal (the tradition launched by Dioscorides in classical times, which reached perhaps its finest flourishing in the early Renaissance); this tradition has influenced our physical presentation of the material.

CAUTION:

This book is an exploration of the "Poison Path." All of the plant substances described in it act on the human body as drugs and thereby as poisons. In many cases there are known and there may also be unknown health hazards involved in their use. The publisher and the author recommend that dangerous or illegal practices be avoided.

This is a literary work that takes as its subject the relation that has existed throughout the world since ancient times between "power plants" and shamanic and literary creation. The authorial voice that appears in it should be considered a fictional persona. The inclusion of recipes, preparations, or dosages is an expression of that fictional voice, and should not be regarded as actual recommendations for usage.

Neither the publisher nor the author assume any liability for unwise or unsafe actions by readers of this book.

For Laura:
patience, support, laughter

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PREFACE

This book, a companion to *Pharmako/Poeia,* is the second in my investigation of the nature of poisons. Psychoactive plants were selected as prototypical poisons, and their history and use bear all the marks of the ambiguity we would expect from the *pharmakon*—the drug—that which is both noxious and healing, medicine and bewitching charm, chemical reagent and the artist's colors.

Books themselves are poisons: revealing, teaching, seducing; the letter of orthodoxy or the seed of subversion. One might find interesting parallels between book-burners and anti-drug warriors: certainly they came together in the Inquisition—and in Pre-Conquest Mexico.

I wanted *Pharmako/Dynamis* to be able to stand on its own, yet it inevitably depends upon certain definitions and metaphorical equations developed in the first volume. Therefore this book, as the first, begins with the nature of poison: trying on the one hand not to repeat, but on the other to establish the background necessary to proceed.

The promiscuous mixing of "hard" science with poetry, and, even worse, the "occult," is sufficiently repellent to true believers of both camps to keep them at a safe distance. Like Mulla Nasrudin's tomb, the gate is heavily locked, but it stands alone: there is no fence. A key is indeed necessary to unlock the gate, but anyone is free to just walk around it. I call this technique "autocryptosis." It seems only fitting that a book about poisons ought be poison itself. The tomb awaits.

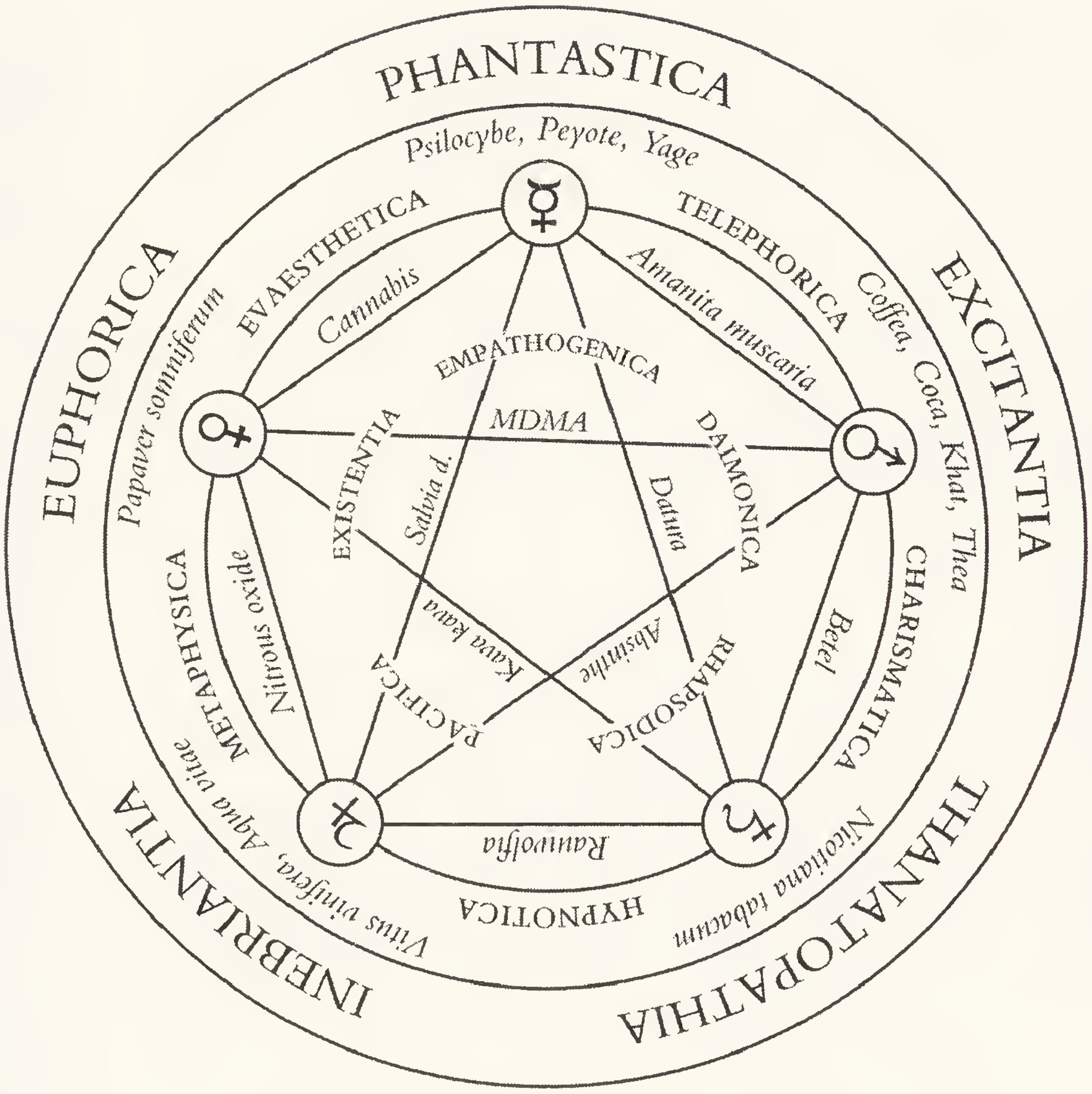
The structure is three-dimensional and holographic. Start anywhere. Read backwards. A book is linear by nature, but that is only a single projection—other cut-ups might make more sense. It is said that the whole alphabet can be projected by various turnings of the three-dimensional ur-letter, the Aleph.

My method, where possible, has been immersion. It has been my hope that the style, the pace, and the general approach of the writing in the different sections would thereby reflect, and perhaps capture in a way beyond what I could predict, the spirit of the subject. (For example, the excitantia chapters turned out being the longest.)

Lastly, it was never my intention to write for everyone.

In which case, I would say, you have scored substantial success.

Thank you, Sweetheart. Good night now.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Amanita muscaria
CHARISMATICA
Betel
HYPNOTICA
Rauwolfia
METAPHYSICA
Nitrous oxide
EMPATHOGENICA
MDMA
DAIMONICA
Datura
RHAPSODICA
Absinthe
PACIFICA
Kava kava
EXISTENTIA
Salvia d.
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PHARMAKODYNAMIS

ON THE NATURE OF POISON

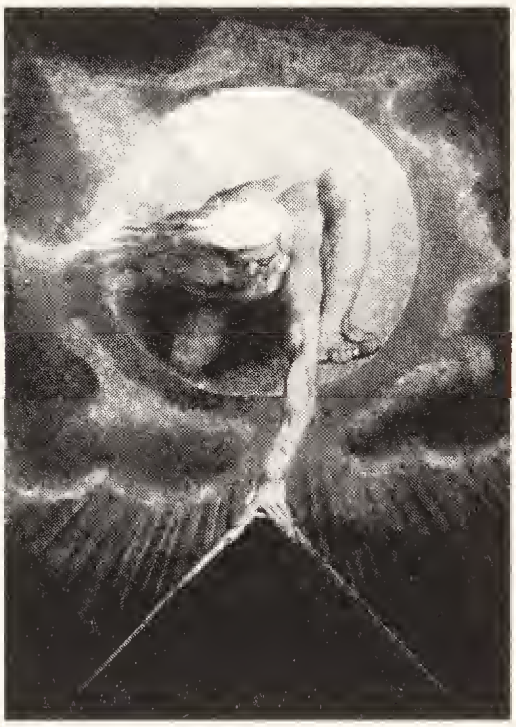
Pharmacodynamics is the study of the effects and actions of drugs on living organisms. The Greek word δυναμις denotes power and force. Theophrastus used it to refer specifically to the intrinsic properties of plants and Galen used *dynamis* (transliterating upsilon as y) in a book title. And in the sense of power, *dynamis* could also mean medicine, the particular powers or manifestations of divine beings, and, as suits us here, a collection of formulae or prescriptions.

Or incantations

Poetry, in the tradition of Baudelaire and Rimbaud, is an example of poison path praxis: that through self-experiment and self examination one can know the taste of water, as they say, for oneself.

Doesn't look like water to me.

In the Gospel of Matthew, Jesus uses the word *dynamis* to refer to His miracles, warning the cities in which He performed them that they would be judged most harshly for not being more impressed. Jesus is also the *pharmakon,* the Medicine, and, obliquely, the *pharmakos,* the scapegoat, the one who heals the village by being sacrificed. The history of power plants, and the fate of their users, illustrates over and again the persistence of this etymological linkage in the realpolitik of modern nation-states.



WILLIAM BLAKE,
THE ANCIENT OF DAYS,
1794

> *To become wise, one must* wish *to have certain experiences and run, as it were, into their gaping jaws. This, of course, is very dangerous; many a wise guy has been swallowed.*
>
> *—Nietzsche*

The *pharmakon* is both remedy and poison: a baneful drug or a medicinal restorative. Homer uses the word both ways. It also means "charm," or "spell," deriving from philtre or enchanted potion (and English "potion," again, is poison—through Medieval French—the first poisons being love potions).

O, mickle is the powerful grace that lies
In herbs, plants, stones, and their true qualities . . .
Within the infant rind of this small flower
Poison hath residence and medicine power.

—Shakespeare, Romeo and Juliet

Latin *venenum*, "poison, potion, drug," is rooted in love: Proto-Indo-European **wenes-no-,* Venus. A Sanskrit cousin is *van-,* "desire." In German (also Dutch, Danish, and Swedish), poison is *Gift,* thought to have come to that meaning euphemistically, through marriage, as in Old English *ġift,* the bride price, that which must be paid, and perhaps by analogy to the Greek δοσις*:* gift, payment, or dose of medicine.

We begin with a substance, but we must not end there. We seek the primal poison, the root illness.

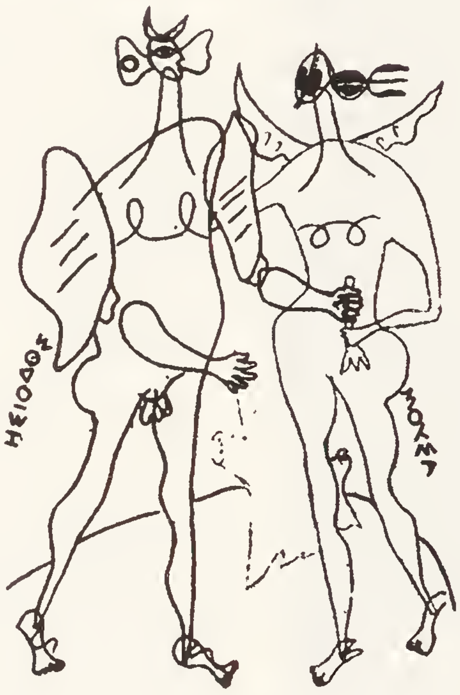
The prima materia.

Mother of all suffering, Pandora, the bearer of gifts and the all-gifted, who completed the world as we know it. We might call her Maya. Or the all-suffering mother, Mary, or Kwan Yin.

Opening the jar is the Hermetic pursuit: Hermes inspired Pandora as the Serpent inspired Eve, that mortals might have the gift of knowledge, the poison of the gods.

Hesiod's model was the ritual of the "Opening of the Jars" in the Dionysiac festival of the Anthesteria. This ritual was a ceremonial opening of the jars of new wine; the new wine was, according to Plutarch, a pharmakon: *the word, which is untranslatable, signifies a thing fraught with special magic powers which can produce either favorable or unfavorable effects, according to circumstances.*

– Norman O. Brown, Hermes the Thief



HESIOD GUIDED BY HIS MUSE, DRAWING BY GEORGES BRAQUE

The double-edged sword of intellect. Reason as our most spectacular poison, concepts as frozen mind, Huxley's ice cubes. The mind road that builds on itself, arches and walls of verbs and nouns.

General and abstract ideas are the source of the greatest errors of mankind.

– Rousseau

But we also forge hammers and drills, wrecking bars.

We can poison like with like, but this method is intrinsically and topologically limited. It is like someone who lives on the surface of a cylinder trying to draw an arrow to the center. We are limited to inference and analogy. At some point we must brave a trip through the *athanor,* the alchemical furnace.

Maya is Mara. The Tempter. The Temptress. In the heat of transmutation, Mara panics. Clinging to wisps of flame, already broken up and half consumed, Mara releases a phantasmagoria of dreams and visions, secrets and powers. Fission triggers fusion. Scattering patterns emerge, imply hidden and deeper structures: lepton trails in bubble chambers, centaurs in clouds, cryptographia on beach sand. The deciphering is more art than science.

The secret meaning of the morning star.

> *If you seek it in forms or colors,*
> *If you seek it in voices you hear,*
> *You are on a false path*
> *And won't find the Thus Come.*
>
> *– Diamond Sutra*

Buddhists are wary of visions, see them as sirens, as will-o'-the-wisps that recede further and further into the swamp when pursued.

魔境

Makyō

Ma, hemp-spirit, Mara, the devil in the phenomenal world. *Makyō* are visions that appear at certain stages of the meditation path.

> *A deep dream of participation in the Buddha Dharma.*
>
> *– Robert Aitken*

The *Surangama Sutra* lists fifty types of *makyō,* ten for each of the five aggregates: form, receptiveness, conception, discrimination, and consciousness. The Buddha states that these visions are harmless, even excellent progressive stages, unless the practitioner believes that they signify complete attainment.

> *As the practiser looks exhaustively into discrimination and it becomes void, he will wipe out birth and death but will not yet attain Nirvana. If he clings to his knowledge of his all-embracing consciousness and so sets up his own interpretation that all grass and plants are sentient and do not differ from men and that after death men will become grass and plants; if he delights in such misconception, he will fall into error . . .*
>
> *– Surangama Sutra*

The *poison doctor* should appreciate this offering of lunar wisdom, without succumbing to belief in its converse.

A grand and most enduring hallucination.

The world is *makyō,* but not nihilistic. Just because nothing exists doesn't mean that nothing is real. Just because they have no reality doesn't mean that they aren't there.

In broad daylight, under the blue sky,
he preached a dream in a dream.
Absurd! Absurd!
He deceived the entire assembly.

— Mumon

Who are we, anyway?

Angels, cursed and cast down? Rintrah roaring. Emanations out of emanations, circles and reflections of the Divine, and connected thereto by any of various complicated paths.

Or possibly directly.

Or possibly not. Mu. There is always

that possibility.

The Way of the Poisoner is the Path of *Makyō,* no way around that.

Let the antichrist speak:

Zur Erwägung
Zwiefacher Schmerz ist leichter zu tragen
Als ein Schmerz: willst du darauf es wagen?

For Your Consideration
Double pain is easier to bear
than single pain: do you accept my dare?

– Nietzsche

NIGREDO: A TURN OF DARKENING

Start from where you are.
Saturnian verses, step zero.

Let's try to get this right from the beginning.

Fat chance.

Writing versus research, a metaphor there. Which do you do?

Some of both. That is surely the poison path. It's all about dosage.

The research is the lunar medicine: visionary exploration and dreaming dreams. But the lunar medicine needs a substrate, a sounding board—

maybe
a printing press, a greenhouse, a micrometer,
a phenethylamine backbone, a classroom of students.

Something for the medicine to work upon: the substrate is the solar medicine.

a stack of books debating like a council of citizens
a council of citizens fermenting like a barrel of wine
a barrel of wine dreaming like a rack of dresses
a rack of dresses dangling like a toolbelt
a toolbelt smiling like a scalpel
a scalpel dropping like a line of hooks
a line of hooks disappearing like a revolution
a revolution breathing like a forest

like a palette of colors, or a waiting laboratory,
or maybe a kitchen, or just a pad of paper,

an equation condensing like a poem,
a poem listening like a guitar,
a guitar resonating like a stack of books.

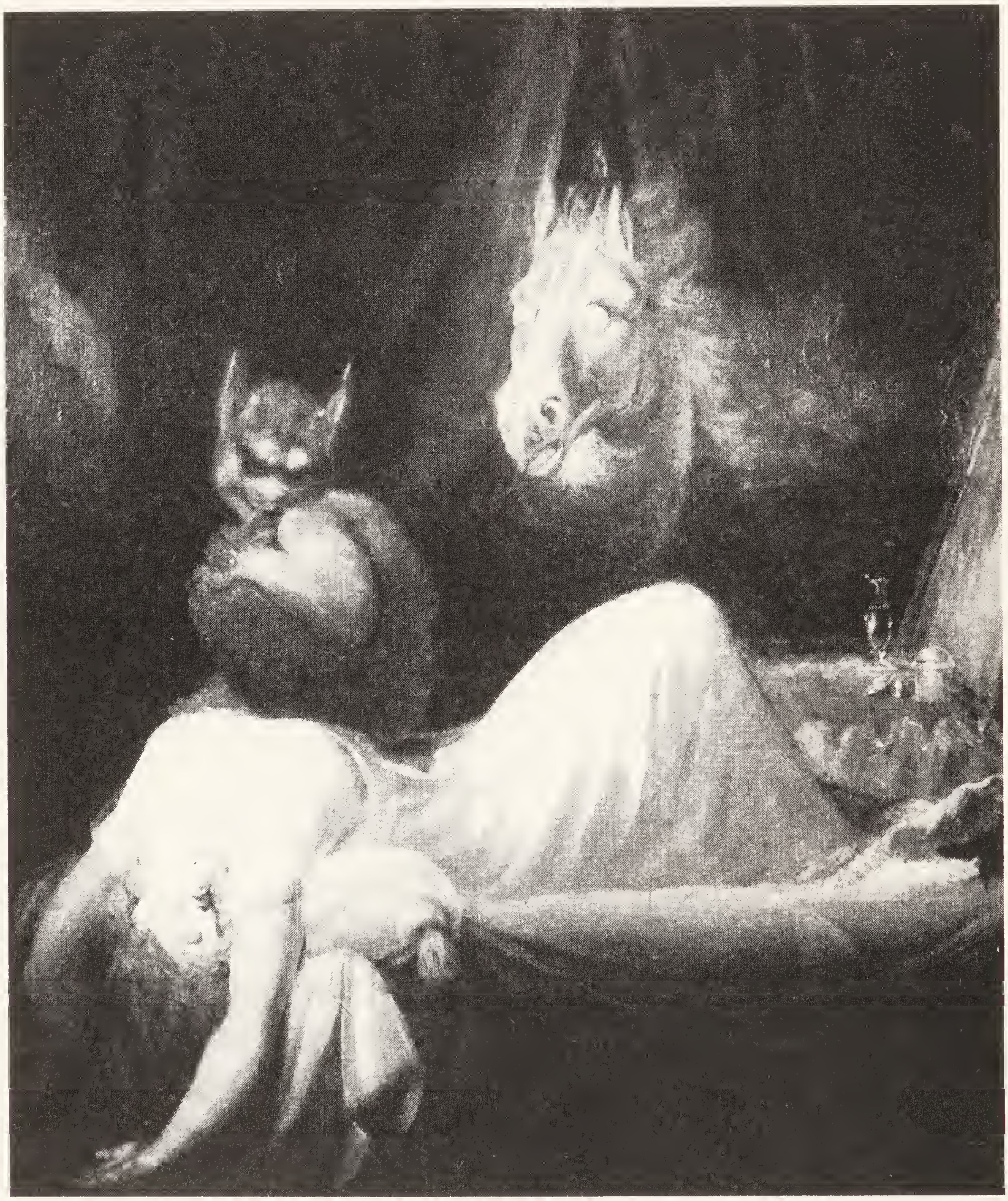
¡Basta! señor. As the man said. Enough.

It is clear that the poison path has to do with a certain excess. Hyperbole: what is the alternative to dying a thousand deaths?

Madness!

That poisons are excessive is almost tautological. In this sense the poison path goes beyond aesthetics.

vomit bowls, etc.
joint in one hand, cigarette in the other,
glass of wine held by the teeth—
now say something cute . . .



JOHN HENRY FUSELI, THE NIGHTMARE, 1785–1790

Conceivably the rupture with aesthetics is a fatal flaw. It is all an argument with Keats. Was Phryne innocent because she was a ten?

Blake answered with a darker beauty, violent and passionate. Camille Paglia calls it chthonian beauty.

> *I am your Rational Power O Albion & that Human Form*
> *You call Divine, is but a Worm seventy inches long*
> *That creeps forth in a night & is dried in the morning sun*
> *In fortuitous concourse of memorys accumulated & lost*
> *It plows the Earth in its own conceit, it overwhelms the Hills*
> *Beneath its winding labyrinths, till a stone of the brook*
> *Stops it in midst of its pride among its hills & rivers*
>
> —*Jerusalem 33:5*

This subtle stone of the brook is the Great Stone of our quest. We can take a hint from Blake that however spiritual and ethereal the journey becomes, there is a crucial material connection.

The chthonic is the human.

Humus / Homunculus.

We are grooms, the earthlings. The earth as a bride. Not property, but a joyous relationship of mutual respect and love.

> *In spite of . . .*

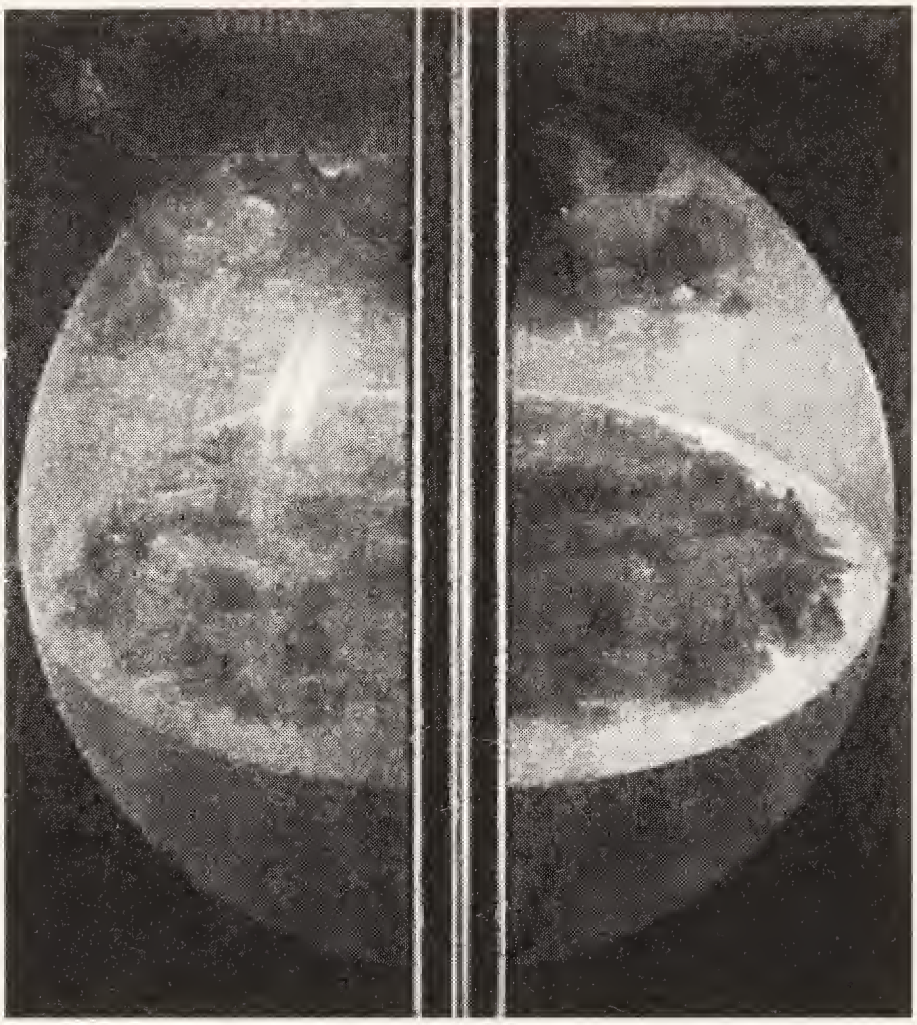
Yes. We all know in spite of.

In spite of the reality.
Because what you think is reality
is more like a ripening plum,
malleable and filled with metamorphoses.
That is why we can say "in spite of."

Still, it is well not to be smug.

> *One should not be too right if one wants to have those who laugh on one's side; a grain of wrong actually belongs to good taste.*
>
> —*Nietzsche, Beyond Good and Evil*

You, would-be Master of the Universe; you, who still remain (the others are outside having *fun*), be like Faust and proceed.



CREATION OF THE WORLD
BOSCH, C.1500

SPEED LIMITS

Reason is temporal: it takes time and has duration. It is a line rather than a point, or perhaps a column, with breadth as well as length, like a regiment of infantry on the march.

Age of Reason. Age of Stimulants. A reasonable universe replacing a rational cosmos. Exotic. Global. Globe, a spherical surface, latitude and the quest for longitude: the chronometer. Space curved and closed, and time changed forever. From forever. A new idea, essentially: time in passage, the quantification of duration.

Stimulants eclipsed the Age of Exploration. Speed and destination instead of the meandering looking about of a scout in unmapped territory. A closing of periphery. Mercantilism. The trading ship: nothing to see on the voyage, nothing but straight ahead. Destination. Goal directed.

The meeting of the continents: Africa, Asia, the "New World," all tied to Europe by vectors of commerce. Speed. Spice. The Great Stimulus.

Tobacco led the advance—coffee, tea, chocolate, and coca followed. Coffee from Arabia, tea from China. Chocolate from Mexico. Coca from Peru.

Coffee, tea, and cocoa all arrived in London the same year.

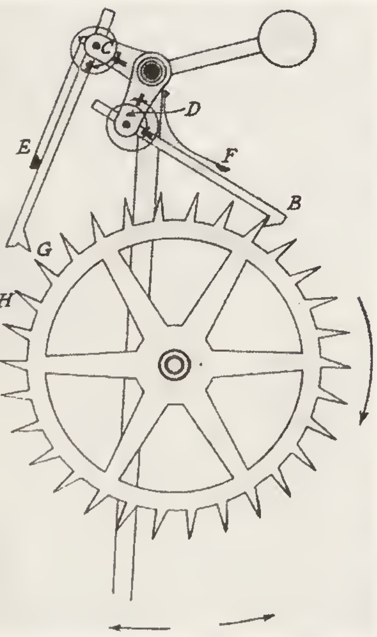
The poisons followed the Hour, like attracting like. They followed the clocks and shared quarters with hours and minutes.

The Hour had made a few sporadic appearances before the seventeenth century, but generally the Hour was a variable—day and night were each twelve hours, regardless of duration. People moved by bells and chimes.

The clock was the triumph of abstract reason. Of rationality.

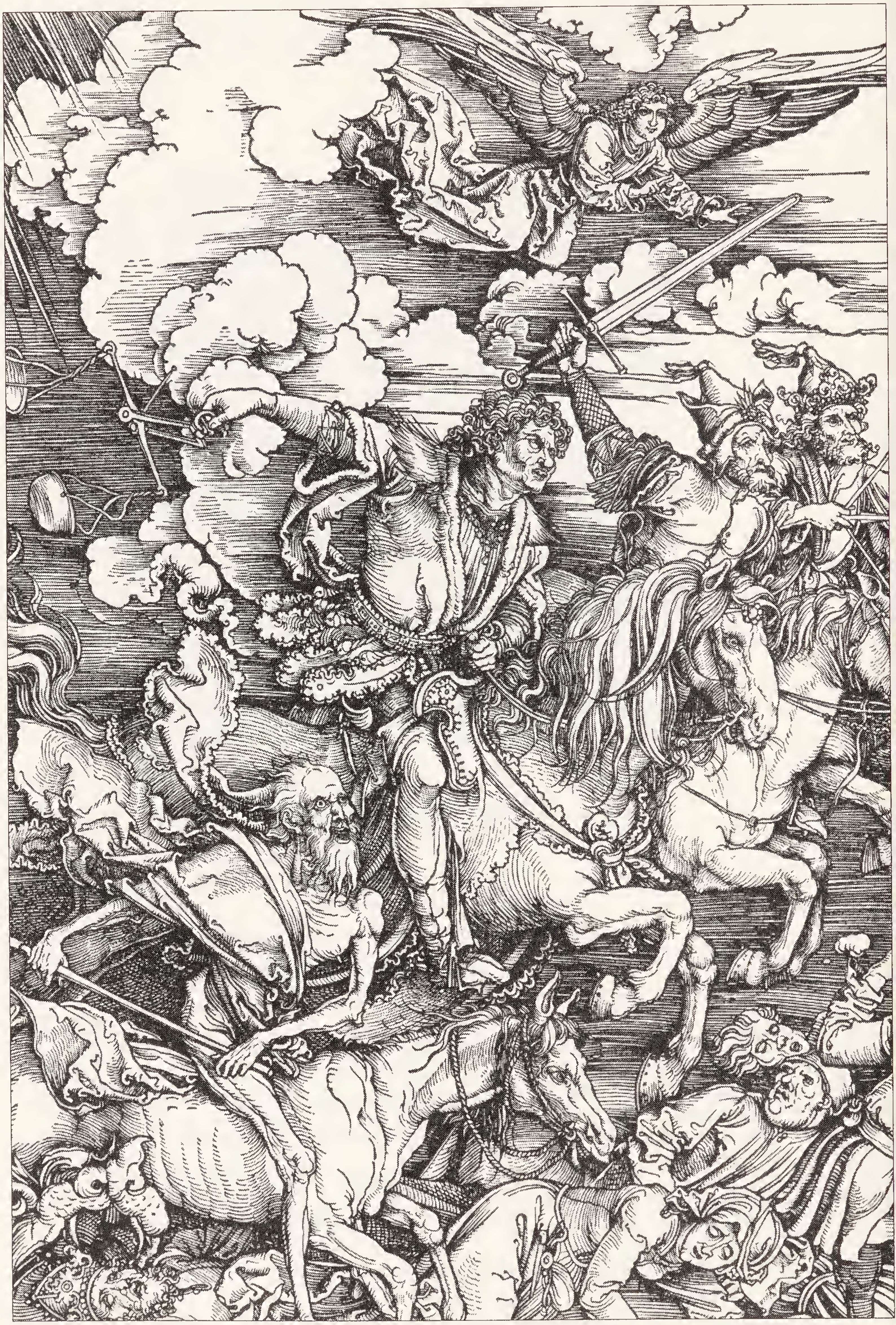
Tempus. Clepsydra. The sandglass. Clock-time.

Verge, balance, to lay an artificial grid on the flowing surface.



HARRISON'S
"GRASSHOPPER"
ESCAPEMENT

As the origins of tea and coffee are rooted to religious practices of the Buddhists and Mohammedans, so the escapement, that most essential ingredient of a mechanical



ALBRECHT DÜRER, THE FOUR HORSEMEN OF THE APOCALYPSE (DETAIL), 1498 clock, grew out of the monasteries—from the need for schedule, that the moment be mastered by will and reason.

Punctuality.

Time measured, moderated: thus Temperance, with her measuring pitchers, came to be portrayed with a sandglass, and finally with a clock.

Punctuating, like periods: the clock as the first digital machine, the heart of the automaton. Hours, seconds. Gigahertz. Time become mechanical.

The escapement like shamanic balance, shifting feet with the pendulous moment, singing a new myth, the measures at once discrete and continuous.

Or are they? Are they anything at all?

> *The surest poison is time.*
>
> *—Emerson*

The aristocracy was both the first to own clocks and the first to drink coffee. The burgher class followed, between 1650 and 1700, taking to both with enthusiasm. Coffeeshops abounded.

By the eighteenth century, prices had dropped enough to allow time and its stimulating servants to be accessible to everyone.

There were a few dissenters. John Wesley preached against indulgence in the new stimulants, and coffee was prohibited for awhile in Germany. But by and large coffee, tea, and the clock were embraced by the Calvinist Protestants and the emerging bourgeoisie.

Marx called the clock the first automatic machine applied to practical purposes. Lewis Mumford said that the clock, not the steam engine, was the driving machine of the Industrial Revolution. The essence of clock-time is discretion—the triumph of the natural number system. Metronome strobing event.

"Time is money" articulated by Franklin, an early coffee lover.

Even in the Andes, the stimulant had a punctuating function. The quid itself is a measure of time, distances measured by the number of chews required to traverse the terrain.

Surplus time. Alienated time. Hourly wage instead of a days work. And the ally promised more: an extra hour, extra focus, extra endurance. Work into the night.

Speed is the essence of modernity.

> *It is our principal and ruling poison.*

Stimulants were the perfect drugs for capitalism.

They substituted for food. They were the mill to squeeze time out of the body, and the clocks were the scales on which to weigh it.

Speed is a scalar, it lacks direction. It requires a narrowing of focus, to stoke the engines and let them go.

> *head-tripping*

Hacking. Rapping.

> *the point being that we know what IT is and we know TIME and we know that everything is really FINE.*
>
> *—Jack Kerouac, On the Road*

There is some antagonism between Excitantia and Inebriantia. Coffee and tea were much less successful where wine was well established. And conversely, wine made little headway in China.

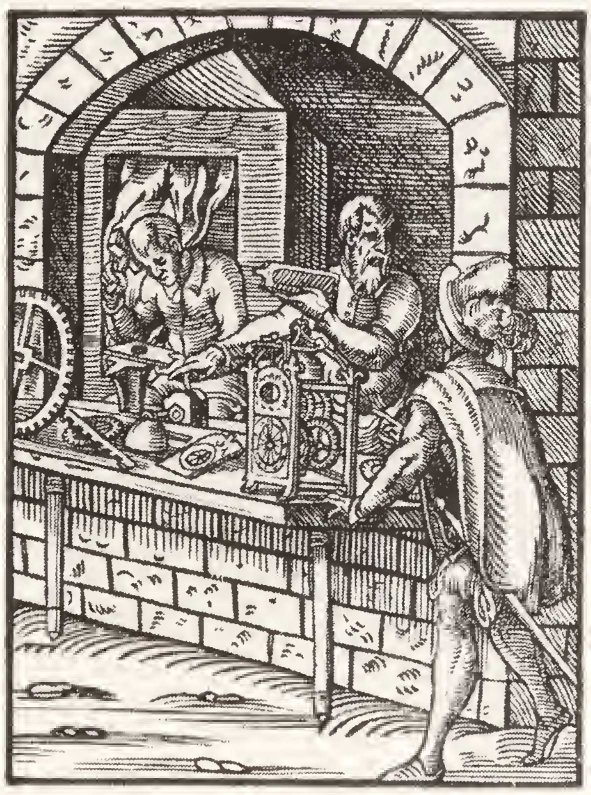
(Tobacco seems to get along with everybody).

The ally usurped normality. It set itself against alcoholic inebriation, called itself sobriety, and began its masquerade.

> *It is the very pervasiveness of the intoxication that makes it*
> *so invisible: it blends completely with the landscape.*
> *It IS the landscape.*
>
> *Every office, large or small, has its shrine, however modest,*
> *to the coffee plant.*

A raising of the center of gravity, like raising the hanging weights of a clock: voice climbs up into the throat. The high center strains the back and shoulders.

> *Pain in the neck.*



JOST AMMAN,
THE CLOCKMAKER, 1568

Straight ahead, *fovea centralis,* the center of the retina. Losing the periphery: maybe "lack of perspective" is the particular distinguishing mark of the stimulants.

The periphery is playfulness, a teasing cunnilingus, or polymorphous perversity. Perspicacity.

Central stimulation is the libido of the mercantile state.

An intoxicated quality: half-dreaming, reverie usurps the controls, drugs the conductor and the engineer, and throws them off the train. The eyes are open, but something is nodding. No "time out." Frenetic. Analysis over contemplation, the universe as a great timetable, a schedule. The periphery, of course, is the medium, the environment.

Too speedy
to have time
to finish a thought.

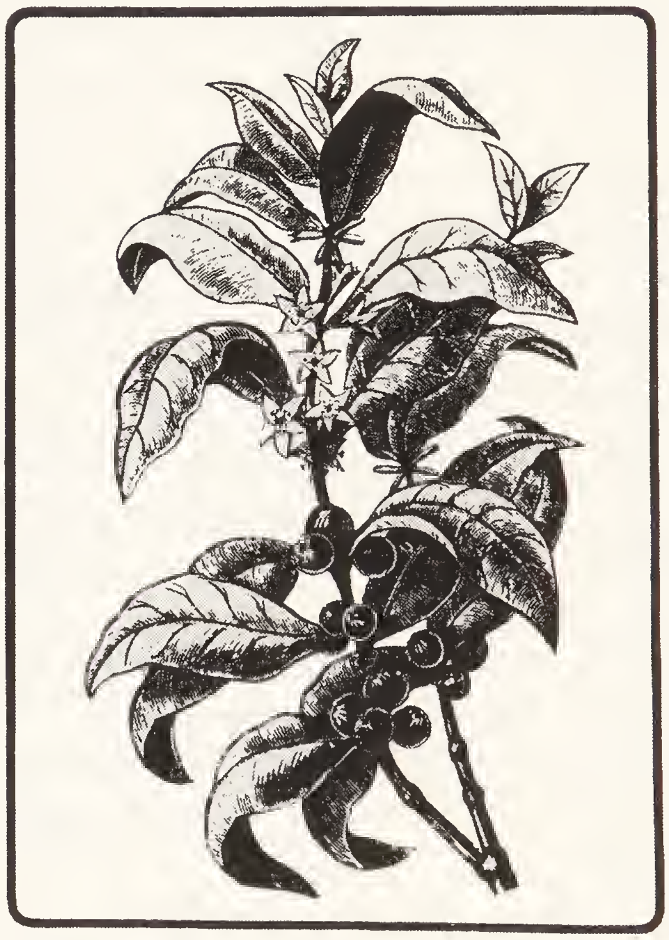
COFFEA ARABICA

Common Names Coffee. Kahvey. Java. Crank. Bean. Joe. Go Juice. Ambition.

Taxonomy The genus *Coffea* is part of the Rubiaceae, one of the largest families of flowering plants. The family is widely represented in the tropics, where it occurs as trees or shrubs. Temperate genera, such as *Galium* (bedstraw, madder) and *Asperula* (woodruff, which is an ingredient in certain liqueurs) are herbaceous.

Alkaloids are common throughout the family. Notable genera are *Cinchona* (quinine), and *Psychotria. Psychotria viridis,* rich in dimethyltryptamine, is a common admixture to ayahuasca.

Only two *Coffea* species are widely cultivated: *Coffea arabica* and *Coffea canephora,* known in the trade as robusta. The best coffee comes from *Coffea arabica,* the original source of the highly prized beans. *Coffea arabica* is the only tetraploid species within the genus, and is apparently a cultigen. Wild populations are very difficult to find, and even those few that are found to be growing without human aid are probably feral. The highlands of southwestern Ethiopia are considered to be the original homeland of *Coffea arabica,* and that is where its greatest genetic diversity is found.



COFFEE PLANT, FROM STRÄSSLE, NATURGESCHICHTE, 1885

While *C. arabica* is nominally tetraploid ($2n=4x=44$), a wide range of polyploids have been found to occur naturally: triploids, pentaploids, hexaploids, and octoploids, as well as haploids. And while the flower is fully capable of cross-fertilization, the tree is so self-compatible that the majority of the fruits are usually self-fertilized. The other wild species of *Coffea* are all diploid and are *generally* self-incompatible, but at least one species is autogamous—perhaps originally a haploid that subsequently doubled.

Since the middle of the nineteenth century, explorers and botanists have discovered scores of truly wild species of *Coffea* in the mountains of tropical Africa and Madagascar. The intrageneric taxonomy of *Coffea,* though well studied, is extremely complex. High variability within some of the wild species, along with wide ranges in the viability of interspecific hybridization (from nearly zero to more than twenty hybrids per one hundred flowers), combine to present the taxonomist with a significant challenge. Botanists traditionally define species based on morphology, but these morphospecies do not always satisfy the requirement of reproductive isolation more often used by zoologists. Several coffee "species," morphologically and ecologically distinct, and clearly separated genetically by geographical barriers, are nonetheless interfertile.

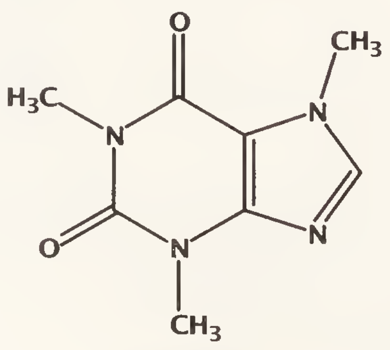
In addition to the traditional morphological-similarity criteria often used to define plant species and genera, the phylogenetic relationships of different wild coffees have been studied more recently with cytogenetic, biochemical, and serological techniques. The results underscore the particular ability of plants to retain ecologically favorable phenotypic adaptations in spite of gene flow.

However, two species living seemingly adjacent to each other may actually be separated by adaptations to particular soil types, narrow ranges of humidity or rainfall, or particular elevations and temperatures, or else by differences in flowering time. Populations of C. *zanguebariae* fall into one of two distinct forms, characterized by leaf thickness (thick, thin), stipule length (long, short), fruit stalk length (very short, long), unripe fruit color (green, brown), and a number of other such morphological features. All except one population. One population contains both types as well as an intermediary form. Although there is no significant geographical isolation of the populations, low viability of experimental hybrids between the two forms reveal a significant genetic barrier.

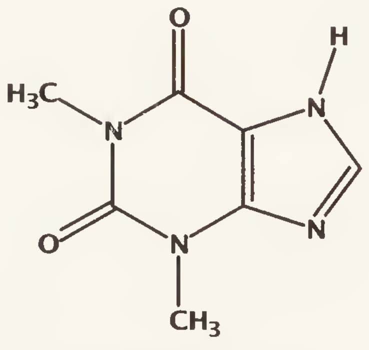
Somewhat the opposite case occurs with the *Coffea* species of Madagascar. The Madagascar coffees have been isolated from Africa since the Cretaceous, and are most distinctive from their African relations by their lack of caffeine. Nonetheless, the Madagascar coffees and a number of the African species can still hybridize.

Part Used The seeds, mostly. In Arabia the pulp is fermented into an alcoholic beverage. In Malaysia and Indonesia, and in some parts of Latin America, the leaves are used to brew a tea.

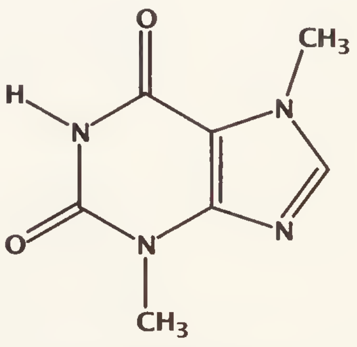
Chemistry The principal alkaloid is caffeine, 1,3,7-trimethylxanthine. Two related xanthines, theobromine (3,7-dimethylxanthine) and theophylline (1,3-dimethylxanthine), are often present in smaller amounts.



CAFFEINE



THEOPHYLLINE



THEOBROMINE

Caffeine occurs in the leaves as well as in the seeds. The caffeine content of green *Coffea arabica* beans varies between 0.6 and 1.6 percent. The caffeine content of the *robusta* form of *Coffea canephora* is higher, usually between 1.2 and 3.2 percent. *Robusta* lacks many of the flavorings found in *arabica,* so is most often used for extracts and instant coffees.

In addition to the alkaloids, the beans contain trigonelline, amino acids, proteins, enzymes, carbohydrates, polysaccharides, quinic and associated chlorogenic acids, oils, a wax that coats the bean, a few pigments, and at least 180 volatile compounds.

Roasting alters the chemistry significantly, of course. Around ten percent of the caffeine vaporizes, even more in a darker roast. Perhaps the greatest effect of roasting is on the carbohydrates, which are highly pyrolized. Roasting also destroys most of the trigonelline, converting it into nicotinic acid (niacin), nicotinamide, and a score of volatile aromatics. Most of the volatile compounds remain trapped within the beans.

Chemists, in partnership with trained coffee-tasters have been able to identify and characterize an astonishingly large number of the flavor constituents of coffee. Like wine tasters, coffee tasters have developed a specialized vocabulary to analyze the complex flavors and feel of a cup of coffee. "Acidity" is distinguished from "sourness," and "bitterness" is distinguished from "astringency" (though molecules that are astringent are sometimes also bitter). Humans have no taste receptor for astringency, but the chemists have been able to correlate astringency with a molecule's ability to precipitate salivary proteins and glycoproteins, and have even developed an objective, *in vitro* model. Results of combined chemical/organoleptic investigation indicate that the astringency in coffee, especially that with a "metallic" aftertaste, seems to correlate with the relative quantities of caffeoylquinic and dicaffeoylquinic acids in the bean.

CAFFEINE CONTENT PER 7 OZ. CUP, MG.

BREWED COFFEE	80–145
INSTANT COFFEE	65–100
DECAF COFFEE	2–4
TEA, IMPORTED	60
TEA, U.S.	40
NO-DOZ TABLET	100, 200
PEPSI COLA, 12 OZ.	38
DR. PEPPER, 12 OZ.	40
COCA COLA, 12 OZ.	46
MOUNTAIN DEW, 12 OZ.	54
JOLT COLA, 12 OZ.	100
COLD MEDICATION	32 (typical single tablet)
EXCEDRIN EXT. STRENGTH	65 (per capsule)

On the chemical side, semi-quantitative analyses have been made on scores of compounds contributing to the coffee aroma. More, many of the breakdown pathways from precursor compounds in the green bean to the compounds found in the roasted bean have also been traced. But because of the sheer number of compounds involved, and synthetic reactions occurring among the breakdown products, the chemists are quick to admit these exercises as yet have little predictive value in determining which green bean will develop what particular flavors.

The character of "body," the mouthfeel of coffee, has proved chemically elusive. It has been demonstrated that there is no simple relationship between body and viscosity. Experiments suggest complex interactions between bitterness receptor sites, astringent phenols (those with at least two 1,2-dihydroxyphenyl residues) that could bind to them, and salivary proteins. At present, "body" is still the venue of the tasters, as is detecting subtle differences between "papery" and "woody," "grassy" and "green," and "earthy," "bricky," and "cereal."

Snore.

No. Wake up now. Have a cup of coffee.

How Taken

The oldest method is probably chewing the seeds. In Ethiopia the beans are cooked in butter and made into cakes. In Yemen and other Arab countries the seeds are ground by the woman of the house in the morning by pounding. This sometimes creates problems for people living in apartments. Before the coffee may be drunk the preparation of the coffee must be praised by the eldest male.

Effects

To spare spouses and others from being cursed first thing in the morning, which impulse is itself at least partially the result of the coffee you drank yesterday.

The Plant

Coffee grows naturally as an understory plant in the tropics as a shrub or small tree. It can grow to a height of more than twelve feet, but is usually pruned in ways that increase its bushiness, leafiness, and ease of harvesting. The white flowers give off a delicate fragrance.

Until recently, nearly all coffee was grown in the shade, in conditions mimicking its natural environment. Growers plant as many as forty different kinds of trees as canopy cover, and a rich ecosystem develops, with epiphytes, mosses, birds, and other wildlife. Today more and more coffee is being grown in cleared "sun plantations." While these sun plantations are better suited to the capital- and fertilizer-intensive methods of agribusiness, they offer no habitat for the hundreds of birds, animals, and innumerable insects found in the traditional farms.

Odd calling a coffee plantation "traditional."

In the cleared plantations, special care has to be taken to protect young plants from the excess of sunlight. Lack of biological insect control necessitates using more pesticides, as lack of humus and plant litter necessitates using more chemical fertilizers. The result is that sun-grown coffee beans are more expensive by the pound to produce than shade-grown coffee, even though the yield per acre is higher. If you can buy shade-grown coffee, do so.

> *The cover trees used in shade plantations often include species of Acacia, Cassia, and Erythrina. And since Salvia divinorum grows well under coffee trees, certain three-level plantation designs come to mind that could be highly viable both ecologically and spiritually, as well as economically.*

How Taken As a beverage, in a cup, extracted with hot water by refluxing ("percolated coffee"), by percolating ("drip coffee"), or by decoction ("campfire coffee").

Drunk in a demitasse, as espresso. With milk, as café au lait or caffe latte. With steamed milk with foam on top, as cappuccino. From a styrofoam cup, at public meetings. From a thermos, directly.

On occasion, squirted through a rubber tube and plastic syringe, as a colonic enema.

History According to legend, we learned about coffee from goats. Around the year 850 in southern Abyssinia, a young goat-herd named Khaldi noticed that his goats were particularly frisky and frolicsome when he brought them home in the evening. Curious, he followed them the next day and observed them eating the leaves and berries of the coffee tree. Possessing that spirit of inquiry so necessary

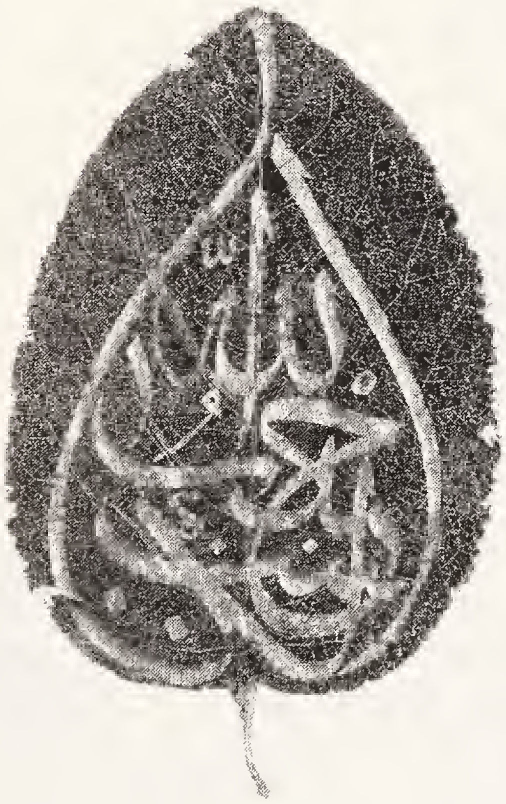
EADWEARD MUYBRIDGE, PHOTOGRAPH, GUATEMALA, 1875 to our ancient craft, the lad tried the fruits himself and was delighted with the result. The prior of a nearby monastery of dervishes followed his example, and found the beans excellent for sustaining the all-night prayers and devotions of his sect. Some say the arts of roasting and brewing coffee were revealed to mankind by the Angel Gabriel.

Avicenna wrote of the medicinal qualities of coffee around the year 900. The first known cultivation of coffee was by the Arabian colony at Harrar, in the thirteenth century. From Harrar, on the banks of the Red Sea, coffee traveled to the center of the world: Mecca. Koranic authorities generally frowned on coffee drinking, but by the fifteenth century coffee drinking had spread around much of the Moslem world. Coffee was introduced to Constantinople in 1453, when the Ottoman Turks, having discovered the secret of Greek Fire, were at last able to conquer the ancient city. The first coffeehouse opened in Constantinople in 1475. There were already coffeehouses in Cairo and in Persia.

When the black spirits pour inside us,
Then the spirit of God and air
And all that is wonderous within
Moves us through the night, never-ending.

—Rumi, 13th Century

Religious opposition to coffee drinking resulted in political proscription a number of times during the sixteenth century. Central to the debate was whether drinking coffee fell under the same Koranic prohibition against intoxication as wine. *Quahweh*, coffee, was also a poetical word for wine. Both sides of the debate had their proponents. The "strict" interpretation was that since the Koran did not specifically mention coffee, it was not forbidden. The nonliteralists maintained that wine was a symbol of inebriation, and that any substance that produced inebriation was included in the meaning. Not surprisingly, many of the strict interpreters were coffee drinkers.



CALLIGRAPHIC LEAF, 19TH CENTURY, TURKEY, GOLD ON TOBACCO LEAF

In 1511 the governor of Mecca prohibited coffee drinking, with severe punishment for any transgressor, and ordered all the stores of beans destroyed. In Egypt, the sultan of Cairo felt differently and countermanded the order. But the issue was not settled. During the next several decades coffeehouses in several cities were destroyed several times, sometimes with punishments visited upon the customers. The issue was finally taken up by a court of Koranic scholars, who declared that since coffee was not specifically mentioned in the Koran, it was not forbidden to the faithful. Von Bibra recounts that after the trial the presiding judge and other members of the court retired to enjoy an evening of coffee drinking.

> *Where coffee is served, there is grace, splendour, friendship, and happiness. You flow through the body as freely as life's blood, refreshing all that you touch.*
>
> *—Sheikh Ansari Djerzeri Hanball Abd-al-Kadir, 16th Century*

The Ally The position of the coffee ally in the letter/spirit debate is extremely important. That this first data point falls with the literalist camp, however, may show more about the coffee ally's power to seduce her devotees into a pragmatic embrace of whichever position is of immediate aid to their goddess than to her intrinsic spiritual properties. Or perhaps those *are* her intrinsic spiritual properties.

> *But of course what is good for coffee is good for all,*
> *the matter of "enlightened self-interest."*

History Descriptions of coffee drinking began to appear in Europe and England through reports of travelers. One of the first descriptions was written by Rauwolf of Augsburg, who later gave his name to *Serpentaria rauwolfia,* the source of the tranquilizer reserpine. The first coffeehouse in the West opened in Venice in 1560; from there, coffee spread north over the next century.

Through all of this time the Arabs kept a complete monopoly on coffee beans. Foreigners were not allowed access to the Red Sea plantations, and no viable seeds were allowed to leave the country. But around 1600 an Indian pilgrim was able to smuggle seven beans back to Mysore by strapping them on his belly, a technique still in use at various border crossings as other plant products have fallen under customary scrutiny.

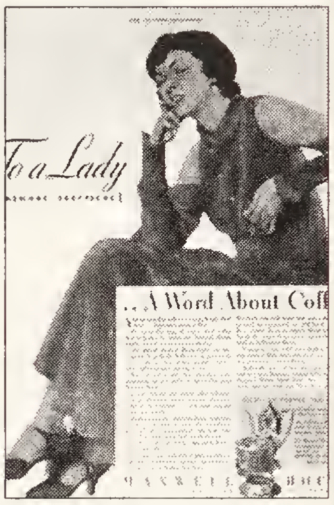
In 1690 a group of Dutch mariners managed to steal several live coffee plants and smuggle them out of the Arab port of Mocha. They planted some of the saplings in Java, a Dutch colony already supplying Europe with pepper, nutmeg, and other spices. At least one coffee plant was sent to the botanical garden in Amsterdam. A shoot of this plant was presented as a gift to King Louis XIV of France in 1713.

Ten years later an enterprising French officer, Gabriel-Mathieu de Clieu, the Captain of Infantry in Martinique, broke into the Jardin Royale and stole the plant. In this he was assisted by a lady of the court whom he had broken into in another manner, and who felt kindly towards him. De Clieu immediately set sail with his plant for the West Indies. The voyage ran into bad weather, ran low on provisions, and de Clieu was forced to share his own scanty water ration with his plant to keep it alive. When the ship landed in Martinique, de Clieu planted his treasure and protected it with guards and thorn bushes. The plant survived, and most of the coffee trees alive in the Western Hemisphere today are its descendants.

Brazil's immense coffee industry got its start from one of the de Clieu's trees that had been transplanted in Guiana. In some measure of poetic justice, the Brazilians also obtained the tree through love. When France and Holland were having a dispute over the border between their colonies in Guiana, Brazil, in an act of friendship, sent an official envoy to help mediate the conflict. During the deliberations, Lieutenant Colonel Francisco de Melo Palheta stayed in Guiana with the French Governor and his wife. When he left, the governor's wife, as an appreciative token of parting, gave him a bouquet of flowers. Hidden within the bouquet was a live cutting from a coffee tree. All of the coffee trees in Brazil are descended from that loving branch.

Effects A tendency to philosophize.

Signatures The herbalists recognized the humoural properties of coffee as cold and dry: melancholic. Since women are wetter, and men drier, by theory coffee was more suitable to women than to men, unless the woman was melancholic in disposition. In men, coffee was best for those of sanguinary temperament. Likewise, coffee was regarded as most medicinal for diseases that were warm in nature, or warm and wet.



TO A LADY: A WORD ABOUT COFFEE (MAXWELL HOUSE AD, 1933)

History Coffee began appearing in Europe in the early seventeenth century. Its entrance, tentative at first, as an expensive and exotic curiosity, quickly became an excited and exponentially growing rush. The first coffeehouse is credited to "Jacob the Jew," at Oxford in 1650. In London, a man named Edwards had brought back coffee beans from his travels in the Levant, along with a Greek slave girl named Pasqua. Pasqua knew how to roast and brew the beans, and Mr. Edwards often had his servant serve coffee to himself and his frequent guests. When Pasqua and Mr. Edward's coachman fell in love and wanted to marry, Edwards, evidently free of morbid possessiveness, gave his consent and was fond enough of the girl to give her his coffee beans and to set her up in business as a wedding gift. Pasqua's coffeehouse opened in 1652 and was a rousing success. Within ten years there were three hundred coffeehouses in London. In 1660, perhaps not coincidentally, the monarchy was reestablished.

COFFEE BEANS

Coffee, the Restorative . . .

Two civil wars, a regicide, and a revolutionary reformation had all been accomplished without coffee. Groups like the Levellers, the Ranters, the Diggers, the Muggletonians, and the Family of Love explored fresh theological revelations, free love, communal living, protection of the commons, redistribution of land and what some called a "New Age." We should remember, in dark days, that sometimes "the people" prevail and popular and radical uprisings can succeed, if briefly.

The Commonwealth lasted barely lasted a decade—institutions can have their own intrinsic dynamics regardless of who runs them. The first losers were the radical groups such as the Diggers, who were being persecuted by the second year of the Commonwealth. The established magisterial churches allied themselves with the Royalists to put down the antinomian threat from the new religions, mostly made up of artisans and small shopkeepers, and the occasional poet (Milton was at the least a fellow traveler). The political and religious ideals of the English Civil War survived the Restoration underground, in spite of sometimes severe persecution. Blake was a Milton man and perhaps a Muggletonian. In some ways the English Civil War was an inspiration for the American Revolution a century later. And the post-Revolutionary religious revival in upstate New York—the "burned-over district"–inherited much of the spirit of the English New Age two hundred years before. Mormons drink no coffee.

Marxist analysis would say that the English tried to skip a grade, tried to violate the laws of historical dialectics—that the true revolutionary class in mid-seventeenth century England was not the Levellers but the bourgeoisie. (This is the same argument the Communists gave for shooting the Anarchists in the back in Barcelona.) Coffee was ready to meet the challenge—it seemed particularly to attract the entrepreneurial mind. When Charles II tried to close the coffeehouses in 1675, it was more to quiet opposition to his economic, rather than his religious policies. The King was forced to rescind his Proclamation when opposition by coffee drinkers threatened to topple the monarchy.

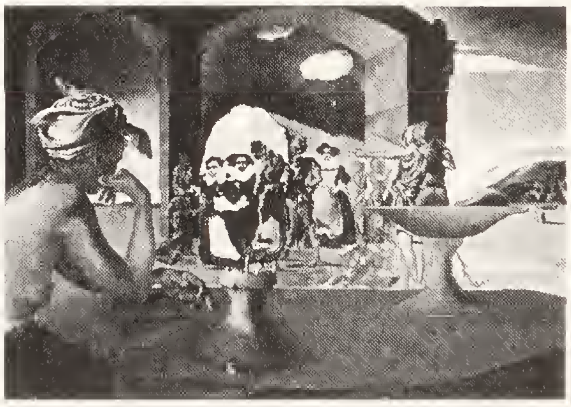
Coffee styled itself the "sober beverage." It was an anti-inebriant, believed then (as still today), to be able to sober up those drunk on spirits. By extension then, to one not inebriated, coffee could make the drinker somehow "more sober" than ordinary sobriety.

Before coffee, hot beverages were almost unknown in Europe. Herbal infusions were drunk for medicinal purposes, if at all. Such plant lore resided in the countryside, and herbalism and the women who preserved the tradition were under increasing attack from urban, university-centered, male medical practitioners. Spiced cider and the alcoholic posset were served hot, but the staple beverage everywhere was beer, beginning with breakfast. In most places, one couldn't drink the water.

Coffee was the new way: it resonated with images of distant places and foreign cultures; it was the spirit of the Enlightenment and supported the Enlightenment and was supported by it in turn.

Signatures, Voltaire

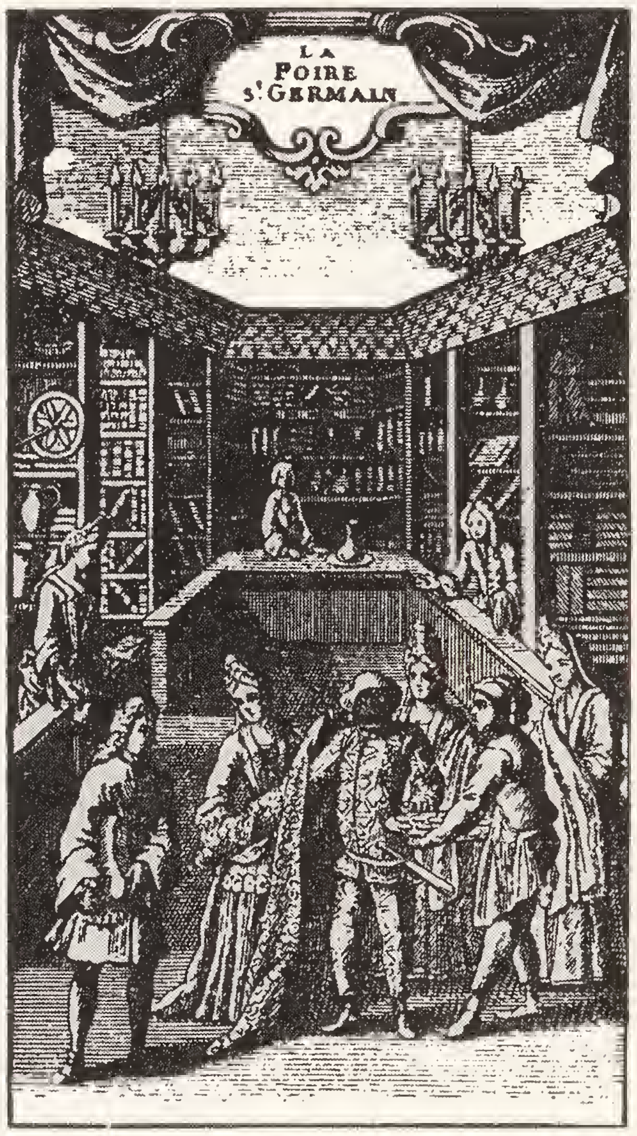
The quintessential coffee-shaman was Voltaire. He was born into a world where kings were believed to enjoy a special affirmation from God, and in which feudal and hierarchical theology was so entrenched that atheism was unthinkable to a serious mind. When he left the world all of those supposed "truths" were in doubt.



VOLTAIRE, BY DALI

As a young man Voltaire studied with the Jesuits. During his studies Voltaire received a remarkable bequest, a sum of money "for buying books," from an even more remarkable woman, Ninon de Lenclos.

Ninon de Lenclos was a notorious courtesan whose salon had attracted Moliere and other leading French intellectuals. Her sexual expertise was so legendary that aristocratic women would send their daughters to her as a finish to finishing school. When Ninon de Lenclos was once confined to a monastery because of her irreligious views—by her own diary she seduced 439 of the monks before Louis XIV decided it was safer to have her on the street. She was highly intelligent, extremely well-read, and a thorough free spirit who didn't believe in hiding her light under a barrel. She saw what she hoped was the same spirit in young Voltaire, and she was right.



COFFEE STALL, LEHNER

Voltaire did buy books, and he followed the light of his patron to find freedom of thought. He was imprisoned in the Bastille for one of his satires, and later spent three years in exile in England. While in England, he did a very un-French thing, he read the English.

Voltaire had already read Descartes and Spinoza. He brought together Descartes's concept of a reasoning free entity, mixed it with the pantheistic theology of Spinoza, and then synthesized these ideas with the mechanical physics of Newton and the toleration, and consequent mistrust of dogmatism, he found in Locke. Voltaire added a garden, and the Enlightenment leapt through time.

Voltaire was evidently a fairly disagreeable man. Rousseau certainly found him so, and Rousseau himself was no personable companion. (When Rousseau, as a young man, had sent the elder philosopher a copy of his *Discourse on Inequality,* Voltaire had answered him, "One longs, on reading your book, to walk on all fours." Rousseau, for his part, as a mature philosopher wrote to Voltaire and after complimenting Voltaire for his genius and expressing his love for his writings, told him that nonetheless he hated him personally.) Both Voltaire and Rousseau frequented the Café Procope in Paris, as did Diderot and another coffee-lover, Benjamin Franklin.

As more and more accounts of shamanism began appearing in the reports of travelers and explorers, Voltaire, like most Enlightenment thinkers, dismissed the phenomenon as mere trickery foisted upon simple-minded people by posturing charlatans. Voltaire saw nothing in the nature of inspiration that might require any transcendence of reason, and the reported use of mind-altering plants by shamans only proved the irrationality of the whole endeavor.

> *Mock on, Mock on . . .*

Voltaire drank seventy-two cups of coffee a day. He used his lover's back as a writing desk.

History By 1700 there were 3000 coffeehouses in London. The coffeehouse provided an entirely different atmosphere from the tavern or pub. Gentlemanly rules of behavior were posted. Coffeehouses were democratic enclaves, where noblemen got no special seats. They were places to discuss ideas, new ideas to match the novelty of the beverage. The coffeehouse was also the place to discuss political ideas, one of the causes of their episodic suppression everywhere from Constantinople to London. The coffeehouse was also a male preserve, and a place to discuss business. One of the first London coffeehouses was Lloyds, the beginning of Lloyds of London. Another coffeehouse grew to become the English stock exchange. Others evolved into trading companies, brokerages, and some of England's largest banks. The rest became the English clubs.

The Ally Though early researchers noted coffee's tendency to loquacity, the ally has a remarkable ability to disguise its intoxication as ordinary, as the ground state. Coffee was characterized as businesslike rather than frivolous, as reasonable rather than impulsive.

> *Except that I'm slowing down. Give me some more coffee. Else I might have to reconsider.*

History It is difficult to separate the history of coffee from that of tea and cocoa and the spice trade—the stories twine together. The major coffee traders were the several East India Companies, principally those of the English and the Dutch. The French, the Danes, the Swedes, the Scots, and the Austrians all had East India companies at various times during the mercantile era, but their power never matched that of the Dutch and English. The role of the East India companies in European and American history in the seventeenth and eighteenth centuries is pivotal and central to the Industrial Age that followed.

At the end of the sixteenth century the Portuguese controlled the world spice trade, having wrested it by finesse and force of arms from the Venetians, who had controlled it for the preceding four centuries. But in 1594 the Portugese overplayed their hand by closing Lisbon to the Dutch and English. The Dutch responded by forming the Dutch East India Company, aiming to open trade directly with the East Indies. They sent four vessels to India, established trading posts, returned with loads of pepper, cloves, nutmeg, and other spices, and soon had a controlling share of the market. In 1599 they doubled the price of pepper. This move, in turn, prompted the English to form their own East India Company to compete with the Dutch.

We'll tell more of this story in the chapter on nutmeg, but, in brief, in numerous frontier wars and acts of piracy, the Dutch East India Company (and the English, when they could) took over many of the Portuguese "possessions," conquests made easier in part because the heavy-handed Portuguese treatment of the natives had predisposed them to ally themselves with any Portuguese enemy. "Cutthroat capitalism" took on a literal meaning when the Dutch monopolized trade with Japan, Siam, and the Spice Islands by capturing and torturing to death ten rival English traders, along with one hundred of their employees and families. State support of these trading companies was so strong that the charter of the Dutch United East India Company, in addition to assuring them a twenty-one year monopoly, gave the company the right to build forts, maintain armies, make treaties, wage wars, and coin money. The British East India Company had a similar charter. Rival ships and entire colonies were taken by force of cannon. Trade laws and tariffs were enacted to support and protect the Company. It was such trade laws, specifically enacted to build the profits of the British East India Company, that led to the American Revolution more than a hundred years later.

That great Conservative, Malthus, was an East India man. He joined the East India Company with a charter to maximize profits when he gave up the ministry. Malthus later went to Parliament and was instrumental in enacting the Poor Laws: laws that cut the traditional charities given to the poor and infirm and instead forced them to enter exceedingly oppressive "workhouses." But that is a story of tea. And there is another story. Coffee, tea, and chocolate created a huge demand for sugar. Growing sugar created a demand for slaves. A large demand, as we shall see.

The Ally The coffee ally and her shrine, the coffeehouse, radically altered English prose style. Writers such as Henry Fielding, Jonathan Swift, Daniel Defoe, and Laurence Sterne, their ears tuned to the speech of the coffeehouses they all frequented, began writing dialog that differed markedly from the stiltedness that had characterized even the popular pre-coffee writers like Thomas Nashe. They began writing in the rhythms and speech of spoken English: the conversational English of the coffeehouse. It was, after all, respectable.

In poetry, coffee went to satire. Pope was a coffee man.

Effects A tendency to repartee and wit.

History During the eighteenth century women broke the male monopoly on coffee drinking. There had been a radical element to the coffeehouse, an egalitarianism—often written explicitly in the house rules. No tradesman was expected to stand and give up his chair to a gentlemen: all were to sit together, wherever there was an empty chair. Parlour coffee drinking, pioneered by the women, aligned itself more with the gentility.

Since drinking coffee socially was something that gentility and the aristocracy did, the middle classes could prove their own respectability and gentility by doing the same. Women's coffee circles, held in private homes, not in public places, became common in England in the early 1700s. There were male jokes about the gossipy subjects the women conversed about compared to the serious business and political talk of the coffeehouse. But by bringing coffee into the home, the way was open to its complete domestication, which was well established by the mid-eighteenth century. Coffee became a breakfast drink and an afternoon drink. Families drank it together and the idea of family life and family harmony—respectable and genteel and all sitting together—crystallized around the central ritual. The English gradually changed to tea—more about that later—but the ritual was the same. Coffee at home also became a norm in France and the Netherlands.

> *Coffee, Coffee musse ich haben: und wenn jemand*
> *mich will laben, ach so schenkt mir Coffee ein!*
>
> *Coffee, I must have coffee. Anyone who*
> *would refresh me, must pour me out some coffee.*
>
> —*Picander/J.S. Bach, 1735, "Coffee Cantata"*

In Germany coffee had a more difficult conquest. The German countryside was so demolished and wasted from the Thirty Years War that Germans little participated in the coffeehouse culture. It wasn't until late in the eighteenth century that a fastidious coffee drinker, Immanuel Kant, brought German Enlightenment thought to its culmination.

For the most part, Germany skipped coffeehouses and moved directly to the domestic stage, about half a century after the more western countries. One problem for German coffee drinking was Germany's lack of colonies: coffee created a trade deficit. Also, coffee was recognized as a competitor to beer, and thus un-German. The combination of economic and political problems in Germany resulted in prohibitions against coffee that were the most severe of any in Europe. Frederick the Great prohibited commoners from drinking coffee, reserving it for the nobility. Special police called "coffee-sniffers" were sent through the cities and towns to find and arrest any of the illegal drug users.

> *kinda like airports . . .*

None of the prohibitions was entirely successful.

Coffee remained a specialty item in Germany until the twentieth century. Drunk, and appreciated, but often difficult to acquire. Many Germans drank chicory.

Chicory "coffee" was championed as a patriotic drink—it could be home-grown and did not contribute to the trade deficit. But even chicory coffee was often adulterated by cheaper ingredients, and old herbals and pharmacopoeias describe techniques for detecting such adulterants. Brick dust or red ochre was the most common adulterant, often added right at the factory along with one or more of a dozen different substances, such as tanoak bark, bread crumbs, used coffee grounds, roasted acorns, or roasted peas. Real coffee was called "bean coffee."

The Ally

At a famous coffeehouse in Paris, the Café Foy, a journalist named Camille Desmoulins who had drunk a great deal of coffee climbed onto a table and delivered a passionate and articulate speech on freedom and the evils of monarchy. A large crowd gathered. The words were repeated and the speech was paraphrased. It was July, 1789. Two days later the Bastille fell.

Pharmacology

Many of the physiological effects of coffee are due to its principal alkaloid, caffeine. The effects of caffeine are today well characterized, though not well understood in terms of cellular mechanisms in spite of highly refined studies. Researchers have also investigated the activity of the nonxanthine components of coffee. One early researcher, named Lehmann, after separating out the various components of the beverage and testing them, claimed that the roasted oils slowed the metabolism and that they seemed to excite the intellect rather than the imagination. Modern research has confirmed these early studies in some ways, as, for example, a recent study that found nonalkaloidal compounds in coffee (feruloylquinic lactone isomers) that act as opiate antagonists. These compounds are most prevalent in instant coffees.

But studies on coffee have often produced conflicting results. It is extremely difficult to separate out the effects of coffee from other dietary and lifestyle factors that may be associated with coffee drinking, such as that people under stress may drink more coffee than "norms." Thus studies linking caffeine intake with stress or depression are open to criticism if other lifestyle factors are not adjusted for. New discoveries about the effects of coffee or one of its constituents are being made regularly. Of all the constituents of coffee, caffeine is the best studied. The complex of chlorogenic acids is known to interact with caffeine, speeding its absorption and delaying its elimination. Recent studies are uncovering the role of the diterpenes in coffee, such as kahweol. See further discussion under "Health."

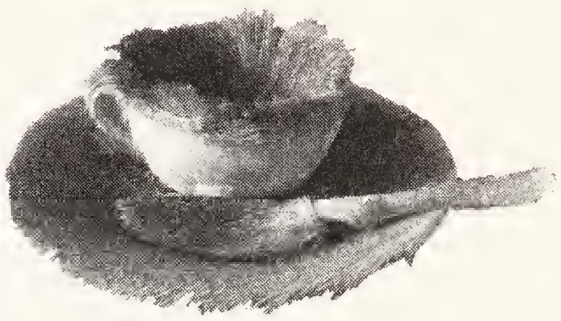
Caffeine is a central nervous system stimulant, a cardiac stimulant, a respiratory stimulant, and a diuretic. Caffeine is addictive. Withdrawal symptoms typically include irritability, fatigue, and headaches, sometimes severe.

Caffeine tends to relax the smooth muscles, including the gastrointestinal tract, but it is probably the chlorogenic compounds, known to increase intestinal motility, that are responsible for the loose bowels and diarrhea often associated with coffee. Stimulation of the gall bladder is caused by nonxanthine components. Coffee stimulates acid and pepsin secretion, and decaffeinated coffee is only slightly less effective.

Caffeine relaxes bronchial muscles, thus is an aid to asthma sufferers, though theophylline and theobromine are more potent. Much of the ability of the xanthines to abate asthma may be due to stimulation of the medullary response to carbon dioxide. As a vasodilator, caffeine also increases pulmonary flow.

Caffeine causes a slight increase in metabolic rate. Like the other xanthines, it stimulates the heart. Large amounts of coffee can produce tachycardia and arrhythmias. Cardiac stimulation from coffee is virtually absent in regular users, due to tolerance.

While caffeine is generally a vasodilator, it has the opposite effect in the kidneys and in the brain, actually decreasing blood flow to the brain. It is the increase in cerebrovascular resistance that makes it effective against migraines caused by cerebrovascular distention.



The stimulating effects of caffeine on the body seem to be greatest in those already fatigued. Caffeine is less effective, sometimes even deleterious, in those already operating at a high level. Everyone agrees that caffeine delays the onset of exhaustion. Cyclists showed significant gains in endurance after ingesting caffeine, and caffeine levels in cyclists are now limited by rules to a moderate threshold. When track and field athletes were tested in double-blind experiments, researchers found that between 54 and 83 percent of the athletes given regular coffee improved their performance in such events as shot put, long jump, and sprints, whereas three-quarters of those given decaffeinated coffee showed a decrease in performance.

Fine motor skills are not improved by caffeine. Caffeine increases hand tremor. But tests of skilled racing drivers showed no drop in performance.

Most agree that caffeine increases alertness. Though a characterization of "prolonging vigilance" might better explain some of the conflicting results in tests of arithmetic performance and reaction time. "Prolonging vigilance" means that caffeine will delay deterioration in reaction time and task performance that would result from physical or mental exhaustion. Or boredom. Caffeine helps rodents to learn, but human studies are equivocal. One researcher said: "increase in intellectual speed but not in power."

a shift toward the fast side,
high frequencies, low amplitude, EEGs
with alpha dominance, theta diminution,

a point to be considered
for certain divinatory practices.

Everyone reports sleep disturbance caused by caffeine. Onset of sleep is delayed. During sleep there is more restlessness, more tossing and turning, and the duration is shorter. Unlike alcohol, caffeine affects deep sleep. REM sleep is little effected.

Individual differences in caffeine's effect on sleep appear to be far less than subjectively perceived, when factors such as dosage, food intake, and situation are controlled. In one study those given placebos and those given decaf coffee equally reported lack of sleep disturbance, while caffeinated coffee disturbed the sleep of both habitual coffee drinkers and abstainers.

Some studies have brought out differences in reactions to coffee among different personality types. One theory is predicated on the idea that cortical arousal is a determinate of behavior, that cortical arousal improves behavioral performance up to an optimum level and beyond that deteriorates such performance. Thus extroverts, characterized by suboptimum arousal levels, experience more positive mood and behavioral effects from coffee than introverts, who are in a chronic state of overarousal. A. Liguori (1999) and his colleagues found no such differences in the effects of coffee between introverts and extroverts. Whatever introverts and extroverts are supposed to be.

Tests of caffeine on "normal" and "hyperactive" children found no statistically significant differences in effects.

The Ally

Coffee's suppressive effect on the theta rhythms may relate to its effect on deeper meditative states.

> *A subtle strengthening of the "monkey mind."*

Coffee drinking is permitted in some Western zendos, not in others—that "bracing" not become "racing."

Effects

Impulsivity. Sociability. A sense of well-being. Or nervousness. Jitters.

Euphoria, especially among nonhabituated users.

> *I hadn't had any coffee for two months and I visited these guys and they made me a cup. I thought for awhile I'd been dosed.*

Pharmacology

Caffeine causes an increase in catecholamines and renin circulating in the blood. In the brain caffeine seems to reduce pre-firing release of serotonin (5-HT) into the synaptic cleft. Increases in both synthesis and turnover of norepinephrine (NE) occur. Increases in blood and urinary levels of NE and epinephrine may come from secrections of both the adrenals and sympathetic nerves. This increase in not observed in habituated users.

Caffeine affects dopaminergic (DA) systems in the brain. The action is biphasic: there is an initial increase in DA levels followed by a drop off. The mechanism is unclear.

Nicotine interacts with caffeine by increasing the rate of its metabolism in the liver, and thus moderating its effects. Again, tolerance to the drugs moderates the moderation.

Caffeine's Galenic characterization as being "cold" is correlated neurochemically in that by inhibiting certain brain neurons that affect the release of temperature-controlling pituitary hormones, in the hypothalamus, caffeine mimics the effects of warmth. The body, through the pituitary gland, responds by lowering body temperature. It is interesting that amphetamines act differently: like caffeine they add cooling to coolness, but unlike caffeine they respond to warmth with more warming.

Effects on hormonal glands within the brain seem dosage dependent and somewhat nonlinear: small doses have no effect while large doses create effects resembling stress. Neuroendocrine effects can be measured in human beings at doses of 500 mg. caffeine, but begin to fade into the ambient hormonal background noise at 250 mg.

A picture begins to emerge: of multiple actions, multiple receptors, direct actions on muscles, complex actions on neurotransmission. When taken together with behavioral variables and neurochemical regulation mechanisms, a metastable and somewhat chaotic system emerges. Small differences in the initial state can cause large differences in caffeine's effects. State variables include tolerance, fatigue, metabolic rate, enzymatic balances, ingrained mental habits (with associated neurochemical responses), existing level of cortical arousal, and of course the combining effects of other drugs, including food.

Much current research is centering on caffeine's action as an adenosine antagonist. Adenosine is found in nearly every synapse in the body. Concentrations of adenosine receptors in the brain are quite variable, with high concentrations found in certain areas such as the molecular layer of the cerebellum and the hippocampus, and correspondingly low concentrations in other areas, such as the hypothalamus and the cerebellum white matter. Therefore any antagonism of adenosine by caffeine could create scores of gradients between the dozens of specialized areas in the brain, with consequently complex results. Chronic ingestion of caffeine by rats results in an increase in brain adenosine receptor density.

Adenosine inhibits blood clotting, and inhibits the breakdown of fats. Such opposite actions for caffeine have not been noted, but that doesn't completely rule out the possibility. In the brain, adenosine seems to inhibit the release of neurotransmitters, whether they are excitatory or inhibitory. Adenosine acts as a presynaptic inhibitor of the release of acetylcholine, noradrenaline, and g-aminobutyric acid (GABA). This non-specific antagonism could explain many of caffeine's complex and sometimes contradictory actions, such as its biphasic action on motor stimulation. At low doses caffeine decreases locomotor activity, while at higher doses such activity is enhanced.

Complicating the picture, at least two different adenosine receptors occur on central neurons. Caffeine appears to bind to one of these much more strongly than to the other, and the two receptors seem to have different, and in some cases opposite, physiological effects. Various substituted xanthines bind preferentially either to adenosine A_I or adenosine A_2. Theophylline and theobromine each have their own binding profiles, distinct from each other and distinct from caffeine.

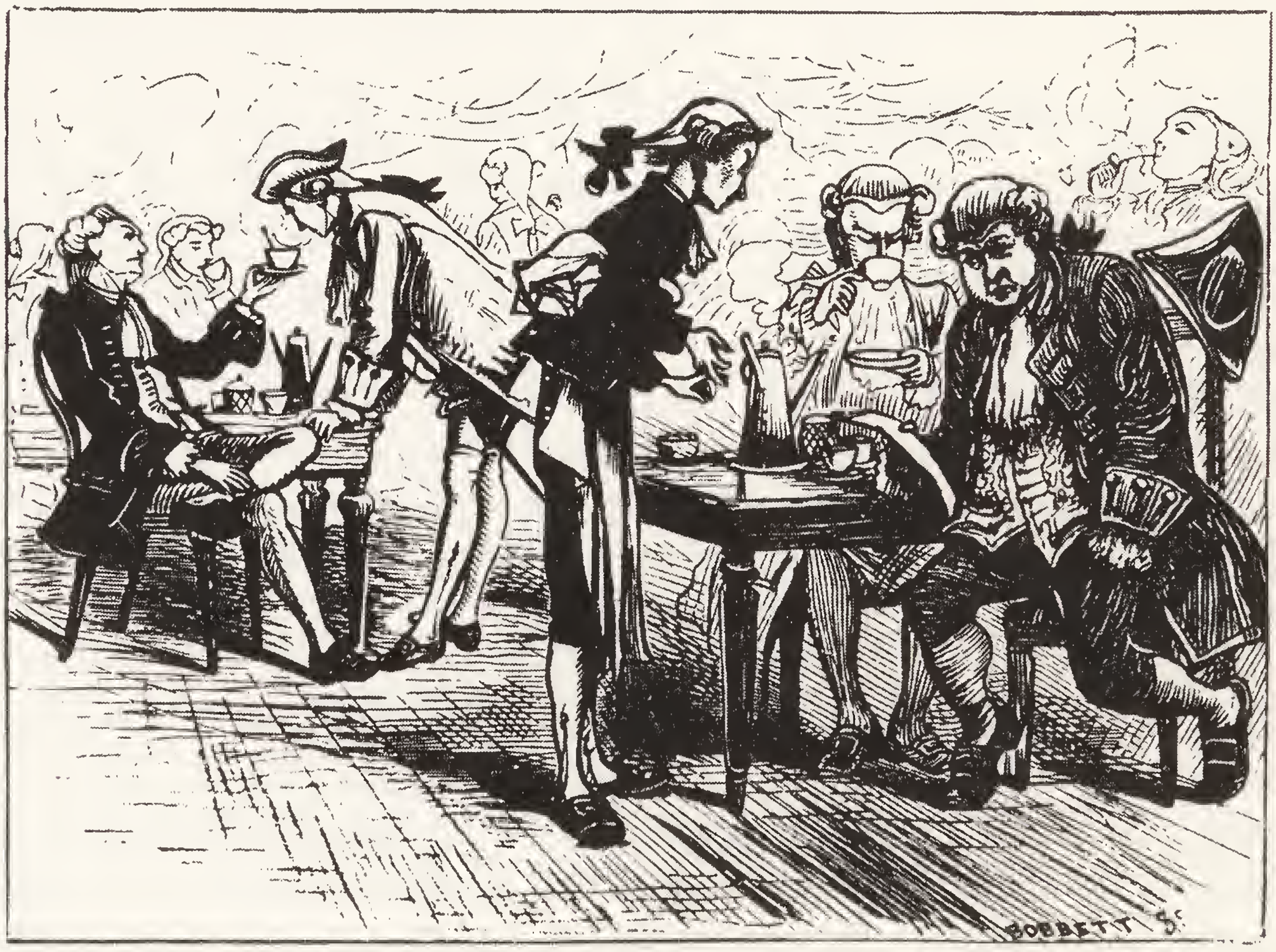
But even adenosine antagonism cannot explain all of the observed effects of caffeine, much less those of coffee. The systems are too complex to be able to characterize the sum of coffee's effects in an operational mode. Disciplined and sensitized phenomenological investigation is, for us, more immediately useful.

The Plant

Someone once offered a cup of coffee to Richard Evans Schultes. He sniffed and answered tersely, "Oh no, that's Brazilian coffee. I only drink Colombian coffee."

How Taken

Around the world, hot or iced, in a wide variety of roasts: light American, medium Vienna, dark French. Brewed with every consistency from a thick muddy soup to a thin tea-like liquid. Combined in any proportion with milk, condensed milk, cream, butter, goat's curd, and eggs. Flavored with various combinations of sugar, lemon, cardamom, cinnamon, allspice, cloves, cocoa, nutmeg, fennel, tamarind, vanilla, hazelnuts, ginger, and saffron.



ALFRED BOBBETT, COFFEE HOUSE IN COLONIAL AMERICA

CORRESPONDENCES

ACTIVITY	Commerce
ANIMAL	Camel
ARCHETYPE	Soldier
ART FORM	Fiction
BODILY FUNCTION	Locomotion
BODY PART	Heart
BUDDHA REALM	Karma
CHORD	Tonic
COLOR	Ivory
COSMIC ENTITY	Main Sequence/Blue-White
CRUTCH FOR	Inattention
DIMENSION	Time
DISCIPLINE	Taxonomy
ELEMENT	Metal
FORM OF ENERGY	Chemical
FORM OF IGNORANCE	Speculation
GEMSTONE	Amethyst
GEOMETRY	Analytic
GOD	Hermes
GODDESS	Fortuna
GRAMMAR	Context Free
HISTORICAL AGE	Kali-Yuga
HUMOUR	Melancholic
IMAGE	Clock
LANDSCAPE	Cities
LOGICAL OPERATOR	Xor

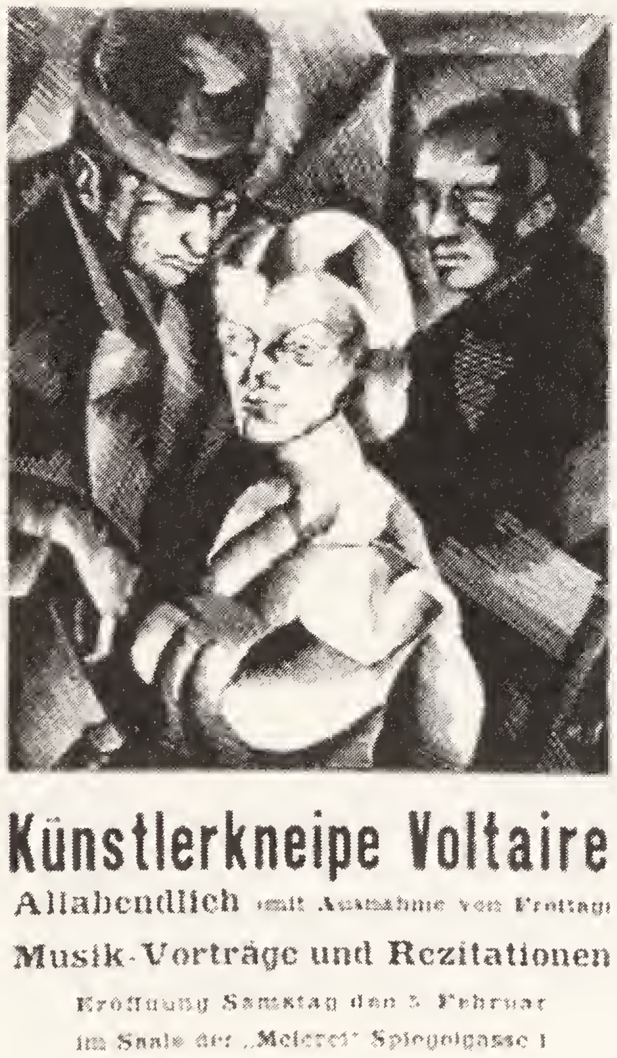
History, 19th Century

The nineteenth century witnessed the consolidation of the class interests of the new bourgeoisie—the global emergence of industrial capitalism and colonialism that has perhaps reached its apotheosis in our own time. Coffee tells the story in a succinct way, an en-cup-sulation, as it were. We will consider the case of Guatemala. But for appropriate context we must briefly return to Rousseau, and the progress of the Enlightenment.

At least since classical times (I'm thinking of Herodotus), civilized man has contrasted himself with the uncivilized, the primitive savages who live in the forests and jungles. Civilized man and primitive man form a dialectic by which the civilized man defines himself. (The converse, however, is not true.) Civilization considers the primitive man to be "wild," the wild man: hence the connotations of the word savage, which means "forest dweller." Any particular civilization's image of the primitive is largely a projection of its own separation from nature, its shadow. The primitive is civilization's representation of the natural man, of raw human nature.

Informed by three centuries of discovery, Rousseau studied primitive cultures in hopes of discovering the nature of the disease called civilization. In Rousseau's century the future course of civilization was not yet cast in concrete—alienation had not reached the point that a thinking man could not believe that he had a role in forming the future course of his society. Rousseau was too cognizant of the shallowness and growing acquisitiveness of his own times to trust the Deist idea that more reason and more learning would by themselves lead to greater moral perfection.

Like Augustine, Rousseau recognized the human capacity for evil. Unlike Augustine, he did not believe in original sin. For Rousseau, the source of Good was not God but nature. And it was in the primitive that he sought to find nature: the original human nature that had not been warped by hierarchies of power, neurotic acquisitiveness, and separation from natural rhythms—human beings who still listened to nature as an inner voice. He liked what he heard.


Künstlerkneipe Voltaire
Allabendlich (mit Ausnahme von Freitag)
Musik-Vorträge und Rezitationen
Eröffnung Samstag den 5. Februar
im Saale der „Meierei" Spiegelgasse 1

MARCEL SLODKI, POSTER FOR OPENING OF CAFE VOLTAIRE, ZURICH, BIRTHPLACE OF DADA

In spite of Voltaire's quips, Rousseau never used the term "Noble Savage," nor did he ever advocate a return to an older, precivilized life style. Rousseau looked to the primitive to recover what has been lost, for the natural wisdom that had guided human culture for countless millennia and from which all civilization had emerged. Rousseau noted that the Savage looked within himself for his identity, while civilized man looked without, to objects and the opinions of others. He noted that in primitive societies everyone was a participant, psychologically and spiritually as well as economically—that there were no disenfranchised classes, that though there were natural differences between men, these were not institutionalized. In short, Rousseau found in the "primitive" much to be admired, and a source of hope for the future course of civilization, even though his own contact with "nature" was mostly his mistress.

After dinner we regained the shade, and while I was picking up bits of dried sticks, to boil our coffee, Madam de Warrens amused herself with herbalizing among the bushes, and with the flowers I had gathered for her in my way. She made me remark in their construction a thousand natural beauties, which greatly amused me, and which ought to have given me a taste for botany.

—Rousseau, Confessions

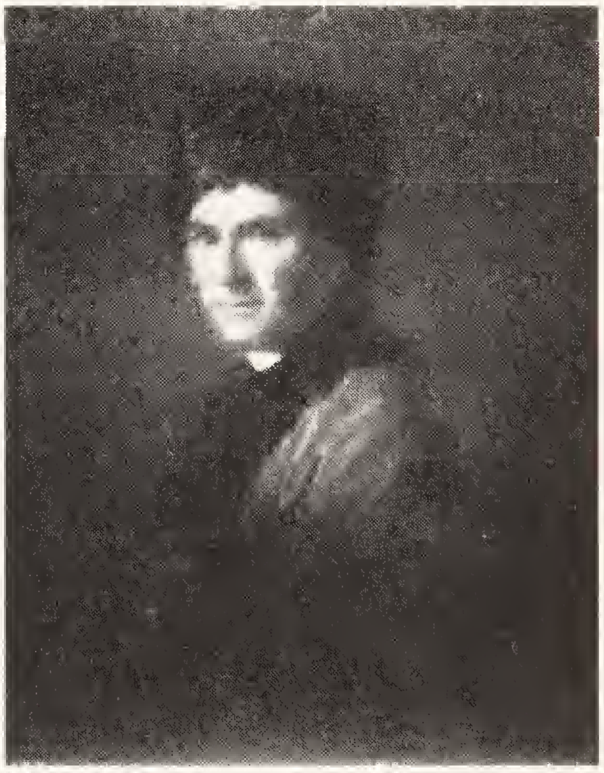
The other major current of the Enlightenment, represented by Voltaire and Diderot and the Encyclopedists, while recognizing the inequities and suffering in their own society, focused on science and reason to discover and implement rational solutions. But this was a matter of emphasis. In spite of Voltaire's sarcasm and Rousseau's paranoia, the two philosophers could have met for coffee, discussed their hopes for the future of the world and found themselves mostly in accord. But by the nineteenth century the two currents had grown further apart.

Eighteenth-century science, still holistic, hardened into nineteenth-century determinism. "Progress," in practice meaning European-style (mainly Anglo-Saxon) capitalism, was seen as a historical and evolutionary inevitability, and thus became the intellectual rationale for the economic and political exploitation of the indigenous peoples on the frontiers. Nineteenth-century genocide never reached the scale that it has in our own century, but we can search there for clues to the etiology of that frightening yet salient characteristic of our modernity.

The Ally A tendency to rationality and the abstract, to be swept away by the grandeur of an idea. A tendency to linearity.

A tendency to verbosity.

Health An interesting recent study (Ross 2000) found a clear linear correlation between coffee and caffeine intake and reduced risk of Parkinson's disease. The correlation was independent of milk, sugar, or niacin intake and held true for both smokers and nonsmokers. As Parkinson's disease causes shaking and coffee causes shaking, this finding should not be surprising to those familiar with the principles of homeopathy—curing like with like.


ALLAN RAMSAY, ROUSSEAU IN ARMENIAN DRESS, 1766

Two diterpenes in coffee, cafestol and kahweol, have been linked to sharply elevated levels of homocysteine in humans. Since there are indications that high plasma homocysteine levels are a more significant risk factor for cardiovascular disease than cholesterol (cafestol and kahweol also raise cholesterol levels), the finding is of interest to coffee drinkers. The original study (Nygard 1997) was made in Norway, where health workers had noticed a correlation between coffee consumption and heart attacks. The good news is that further studies, while confirming the role of homocysteine in hardening of the arteries, found that Norwegians usually brew their coffee by boiling, which maximized the release of the diterpenes. Drip-brewed coffee, through a filter, contains only negligible amounts of the diterpenes. Espresso coffee contains intermediate amounts of cafestol and kahweol (Gross

1997, Grubben 2000). B-vitamins, and folic acid in particular, may be useful in controlling homocysteine levels. Folic acid acts as a coenzyme in metabolizing homocysteine into methionine.

Signatures

And now he rose; and after due ablutions
Exacted by the customs of the East,
And prayers and other pious evolutions,
He drank six cups of coffee at the least,
And then withdrew.

—Byron, Don Juan

History

To the colonialist nineteenth century society, primitive peoples were regarded not as Good Savages but as inferior beings. Partly this is a reflection of the exploitative economic relations: it is psychologically comforting to degrade those one exploits. But as Stanley Diamond points out, the inferior savage is also a projected representation of the degraded image of human nature in nineteenth century Europe itself: a reflection of the increasing callousness and alienation of nineteenth century social relations.

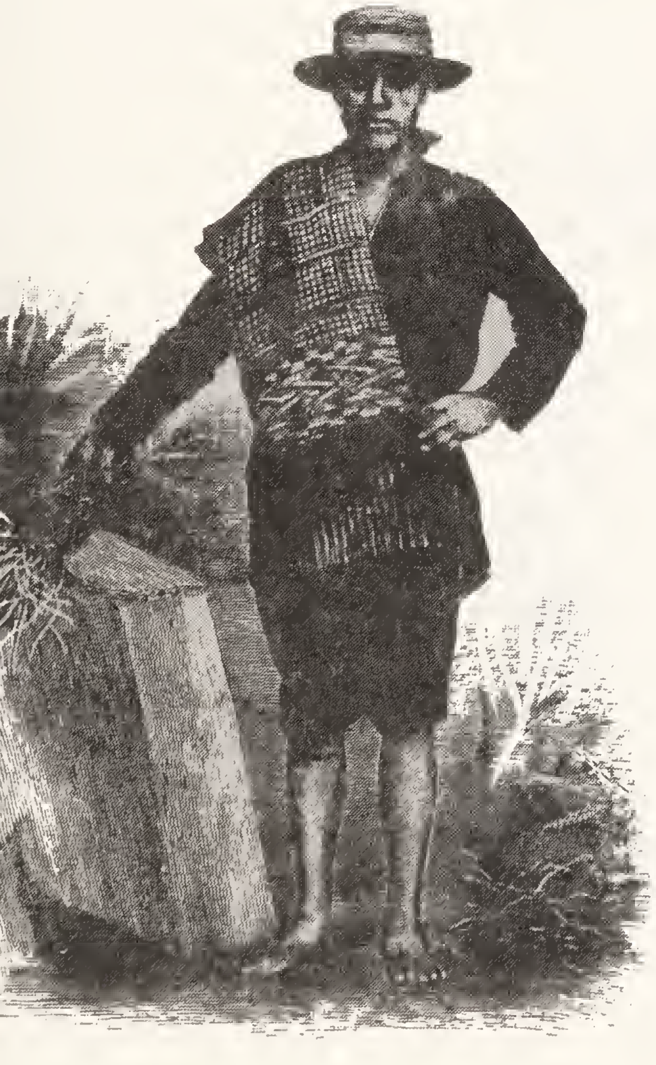
Thus in Guatemala, in 1838–1839, when a massive Indian uprising occurred, it was a Liberal regime that was toppled from power. The leader that emerged from the uprising, Rafael Carrera, partly European but mostly Indian, was supported by the Roman Catholic Church and by the Conservatives. Carrera represented the Rousseauist current: respect for Indians and their way of life, distrust of rapid importation of European culture and innovations, and always measuring "progress" against its impact on traditional culture. On the other side, the Liberals represented European ideals of democracy, industry, and economic expansion. In the Liberal program, the Indians were expected to assimilate, to give up their uncivilized way of life and join in the March of Progress. Carrera saw clearly that progress in its Euro-American idealization meant, in practice, the exploitation and impoverishment of the Indians who comprised two-thirds of Guatemala's population. The Indians had already suffered under two centuries of Spanish conquest and colonialism, but adaptations had been made on both sides, and a certain live-and-let-live accommodation had evolved.

Carrera was overwhelmingly supported by the Indians, who venerated him almost as a god, and his control of the country was near absolute until he died in 1865. During his administration Carerra instituted astonishingly radical (for the time) programs of land reform, protecting and even expanding Indian land rights. He instituted modest Indian educational programs. He regularly met with Indian delegations to listen to their grievances and to remedy them if he could. He brought many *ladinos,* Guatemalans of mixed parentage, into the formerly all-white government. He diversified the economy, trying to minimize Guatemala's export dependence on cochineal. In mid-century, German chemists had invented synthetic dyes based on coal-tar, and the demand for cochineal was falling. Carerra encouraged the growing of coffee, sugar, cotton, and indigo as export crops. But more than that, he discouraged imports wherever the product might be produced domestically. By the time he died, Guatemala was self-sufficient in all basic foodstuffs and had a positive balance of trade. Carrera's hand-picked successor, General Vicente Cerna, unfortunately lacked his predecessor's consummate political skill and never had the full trust of the Indians.

The Liberals swept the Conservatives from power in 1871. The Liberals were by then a coffee party. They were tired of being provincial. They wanted progress. They wanted to look and live like their European and American cousins and for that they needed capital. Coffee seemed to be the answer to all their dreams. Foreigners were encouraged to buy land to start plantations. Plantation owners were given tax breaks. Coffee was exempted from the export tax.

Coffee plantations, of course, need land. The Liberals rewrote the land laws in a way that made it virtually impossible for the Indians, with their system of communal farming, to retain any legal title to their lands. The government promised to assist plantation owners in removing the Indians from their plantation sites, and delivered on their promise. Labor laws were passed that forced Indians to work for plantation owners, backed by penalties and punishments. Wages were so low that many Indians lived in continual debt servitude. Unable to farm their own gardens, the Indians and the whole country became import-dependent for food.

Wealth flowed into the country, but it remained in the hands of the aristocracy. Public works shifted from Carerra's emphasis on domestic infrastructure to urbanization, from interior roads to heavily capitalized railroads that led to the new coastal ports. Beneath the veneer of democracy, the army was more and more called upon to quell domestic unrest as the plantations pushed deeper and deeper into the interior. Remote villages that had lain relatively undisturbed for centuries, little interacting with the central cash economy, were suddenly disrupted by an overwhelming monetary force that had purchased not only their lands but their persons.



The chaotic nature of cash crop economics in the world system is independent of ideology. As in Cuba, a revolution can change domestic institutions, but the strangulating servitude to colonial economics continues. In Guatemala, for awhile, the signs of prosperity were compelling. The economic consequences of being a peripheral producer for the core countries became more apparent when coffee production in Central and South America, Africa, and the Indies finally caught up with and surpassed the demand. Prices fell, with disastrous consequences for Guatemala and the other peripheral countries that had already spent the expected money. It was a story to be repeated again and again in every part of the Third

World. It continues today. It is stamped on the label of every can or bag of coffee.

The Ally

> *The perfect drug for capitalism. Is there an office anywhere that does not have its shrine to the coffee gods?*

On the other hand, it's not a bad beverage for anarchists. Or for town meetings.

Who/what is it not good for—that should be our concern.

> *To find that out you'll have to quit.*

Hmmm, what about
trying excess
instead.

Signatures

Rimbaud went to Africa after he gave up poetry. He dealt in coffee, slaves, and guns.

History

The history of global coffee production is a laboratory for world system theory: of the interplay of globalized markets with domestic politics, and the reciprocal tensions between social classes, public institutions, and the modern nation state. By 1900 each of the Central American countries was ruled by coffee barons or coffee oligarchies, and yet each country maintained distinctive features based on their own history and traditions.

The power of the world market is not an absolute determinate. Costa Rica moved to coffee slowly and steadily, while Guatemala and El Salvador embraced it in a rush; parts of Nicaragua converted to coffee quickly while other parts developed strong local resistance. Costa Rica had land laws limiting the size of any individuals holdings, and allowed peasants to obtain land titles on the basis of "peaceful occupation." In Guatemala, El Salvador, and Nicaragua the government took possession of all nonplantation land by fiat, then acted as developer and broker, backing up its claims with ever larger military forces and armed police. Honduras developed a system of renting out family-sized farms for coffee. Still, the differences in the patterns of land ownership, and thus class structure, in the five countries are overshadowed by the sameness of the essential fact— displacement of the indigenous population—and the differences remain mainly differences of degree. If national police forces were unable to quell peasant or Indian uprisings, or if the resistance won the government through elections, neighboring countries or the United States would sometimes intervene with military force, as we have seen in our own times. In Nicaragua the old landed aristocracy are reclaiming their holdings: the Chomarro family being descendants of one of the wealthiest coffee barons. In Guatemala terror is still the instrument of state and oligarchic power as it was in the nineteenth century.

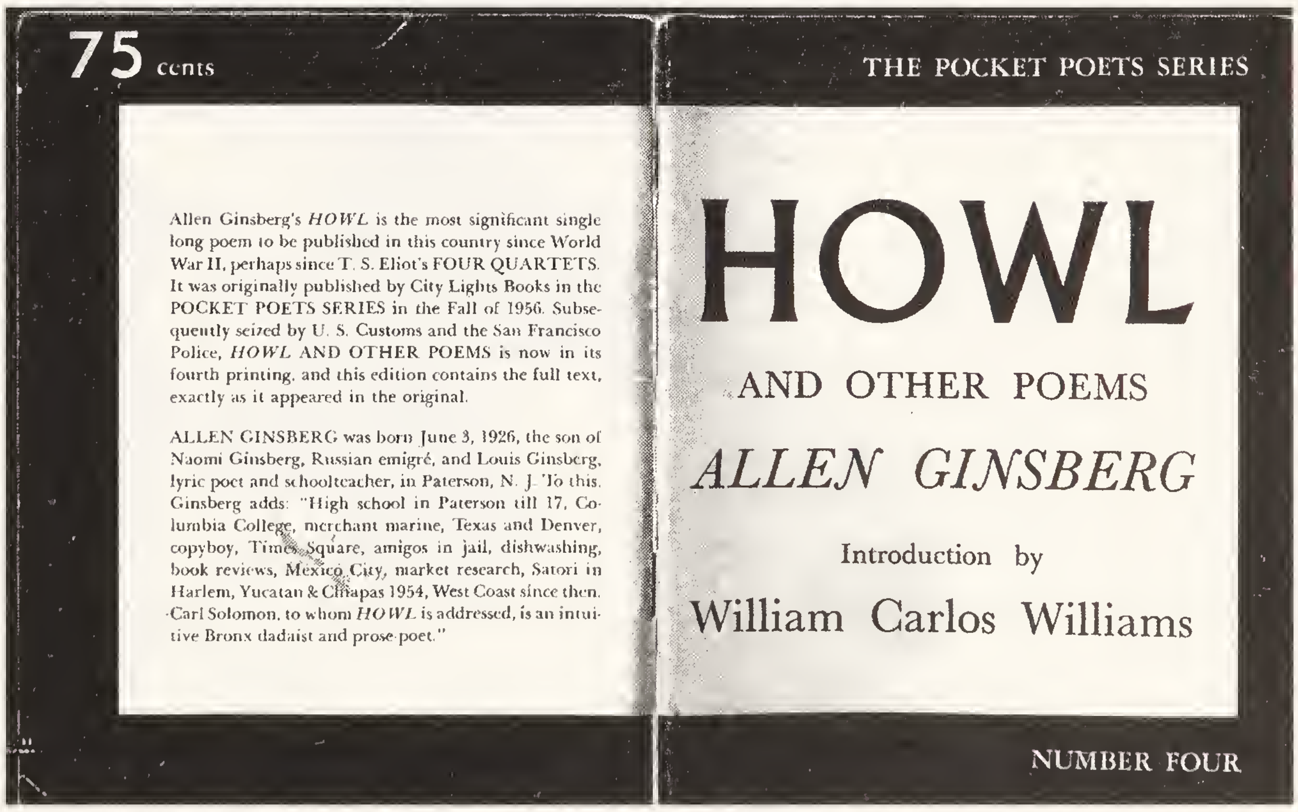
> *Coffee presents the clearest image of the excitantia as a whole. Through coffee, for example, we can understand the current war against coca as a mercantile struggle, as a continuation of the spice wars.*

Today the largest coffee producers are Brazil, Colombia, and the Ivory Coast. In 1975 a frost destroyed most of Brazil's coffee crop, and world coffee prices doubled. In the United States, consumer boycotts were initiated, and Congressional hearings took place. In actuality, by selling reserve stocks of coffee beans, Brazil's coffee exports were only reduced by one-third. The sudden rise in the price of beans was due more to panic than to shortage. Coffee producers and consumers tried to make peace by signing a new International Coffee Agreement. The ICA is an attempt to stabilize the market through production quotas, though the United States, by threatening to pull out, once used the ICA to force Brazil to curtail developing its own coffee extraction industry.

In some places, such as Kenya, villages have formed cooperatives, the community owning the land and growing, harvesting, and selling the beans. Politically aware coffee sellers make a point of offering co-op-grown coffee. In Kenya the cooperatives have been a great boon to the local land-based communities—women, in particular, have been obvious beneficiaries. Some cooperatives are more successful than others, some more egalitarian, some less so. And annual meetings can be factious and heated. But that is to be expected.

Signatures

Three centuries after their appearance in England, coffeehouses reemerged in the United States, again as alternatives to taverns and as intellectually-oriented hangouts, this time for bohemian artists and beatnik poets. The San Francisco poetry renaissance was born in coffeehouses like the Six Gallery and the Blue Unicorn, as was, a decade later, the Berkeley Free Speech Movement, at the Mediterraneum Caffe and the Forum. By the nineties, in cities like Seattle and Santa Cruz, coffeehouses were so numerous they seemed to be on every corner.



75 cents

Allen Ginsberg's *HOWL* is the most significant single long poem to be published in this country since World War II, perhaps since T. S. Eliot's FOUR QUARTETS. It was originally published by City Lights Books in the POCKET POETS SERIES in the Fall of 1956. Subsequently seized by U. S. Customs and the San Francisco Police, *HOWL* AND OTHER POEMS is now in its fourth printing, and this edition contains the full text, exactly as it appeared in the original.

ALLEN GINSBERG was born June 3, 1926, the son of Naomi Ginsberg, Russian emigré, and Louis Ginsberg, lyric poet and schoolteacher, in Paterson, N. J. To this, Ginsberg adds: "High school in Paterson till 17, Columbia College, merchant marine, Texas and Denver, copyboy, Times Square, amigos in jail, dishwashing, book reviews, Mexico City, market research, Satori in Harlem, Yucatan & Chiapas 1954, West Coast since then. Carl Solomon, to whom *HOWL* is addressed, is an intuitive Bronx dadaist and prose-poet."

THE POCKET POETS SERIES

HOWL

AND OTHER POEMS

ALLEN GINSBERG

Introduction by

William Carlos Williams

NUMBER FOUR

In New York City a coffeehouse on Columbus Avenue began operating as a singles dating service. By the late nineties, again following their old tradition of being centers of global commerce and communication, coffeehouses around the world were functioning as cyber-cafés, offering computer internet access along with espresso.

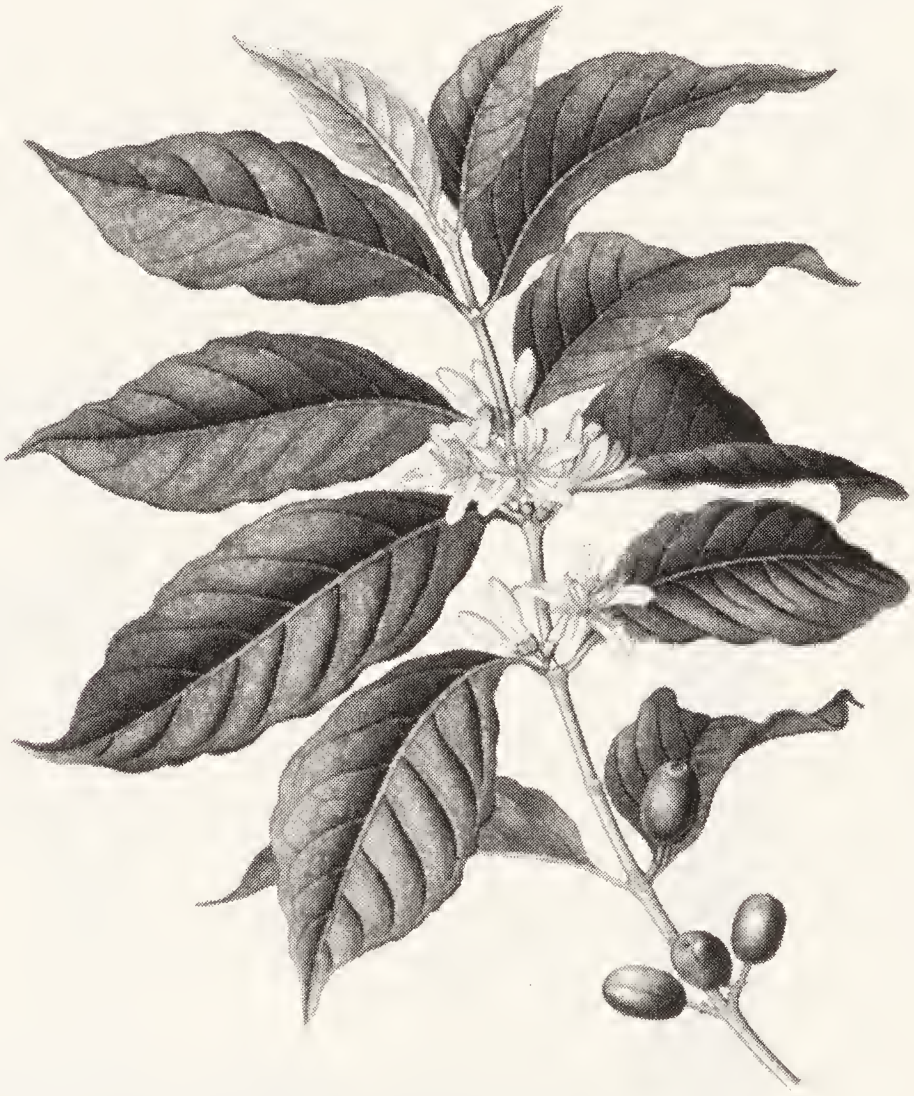
Effects Seems to shrink the male generative organ, at least in repose, part of its "cold" aspect …

The Ally Linnaeus said that coffee was for those who place saving time over their very lives and health, for "working into the night."

Some scientists believe that the majority of Americans are living in a state of sleep deprivation.

Signatures The Swedes and the Finns are the highest per capita coffee consumers. Americans consume 45 million pounds of caffeine per year, three-quarters of it in coffee. The average caffeine intake for Americans is 200 mg. per day.

The Plant Caffeine is an insecticide, disrupting reproductive DNA replication, possibly because of the structural similarities of methyl xanthines and the DNA purine



KOHLER, 1761

base. Certain insects, in response, have developed resistance to the alkaloid's effects. Caffeine's mutagenic toxicity also affects fungi and plants, and the buildup of caffeine in the soil of mature coffee plantations may contribute to the gradual deterioration of their productivity.

Toxicology

The LD50 for caffeine is around 150 mg/kg., equal to Voltaire's daily seventy-two cups being consumed at a single sitting. Sublethal doses can lead to convulsions, tachycardia, palpitation, low blood pressure, rapid breathing (tachypnoea), nausea, and vomiting.

Linkage of coffee drinking with heart attacks is mixed, some studies finding such, others not. One study found decaffeinated coffee to be a risk, but not regular coffee. Reports linking coffee drinking to pancreatic cancer lack evidence.

Purported teratogenic effects of coffee are, again, contradictory and inconclusive. Still, there is enough accumulated evidence, mostly from animal studies using very large dosages, that pregnant human females are advised by the FDA to limit or eliminate their caffeine intake. Other studies have found no association between heavy coffee drinking and birth defects, nor with low birth weight in infants. One study of fish, however, delivered evidence of long-term differences in dentritic spines and branching between control fish and those exposed to modest caffeine solutions 50 to 100 days after fertilization.

Caffeine ingested by nursing mothers is passed through the milk to the infant. Because infants lack the enzymes necessary to metabolize caffeine, it stays in their systems much longer than in adults (the half-life is ten times as long). High caffeine levels in the infant could result in insomnia, restlessness, and colic.

On Decaffeinated Coffee

It still tastes good. Some say it can still keep them awake.

> *Yeah, but an equal amount of caffeinated coffee would keep you awake more.*

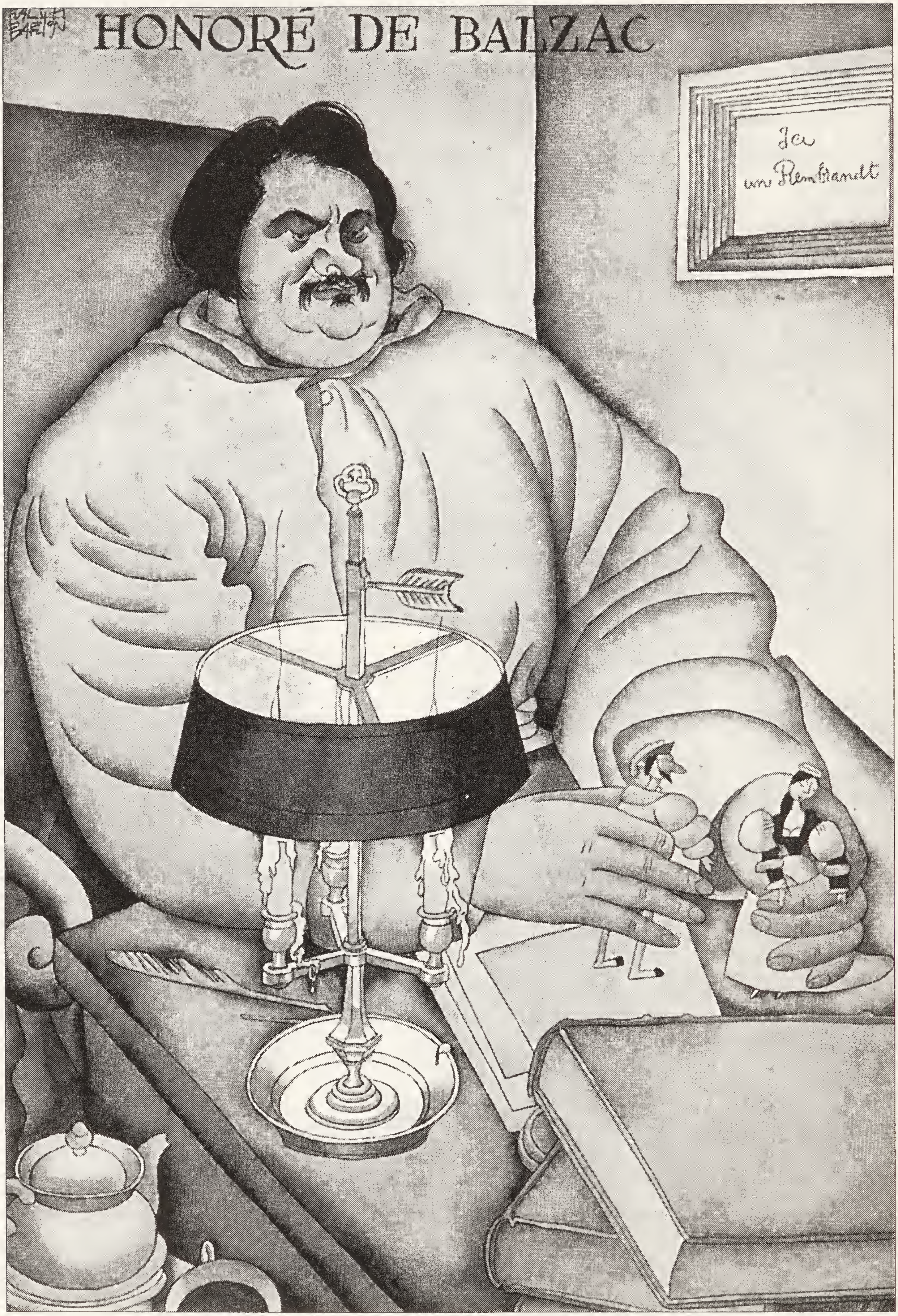
There are two methods of removing the caffeine. One method uses methylene dichloride to extract the caffeine from the green beans. The other method, the "water process," extracts the caffeine with water, along with a lot of other components. Then the dichlor is used to extract the caffeine from the aqueous phase in an industrial equivalent of a sep funnel. Then the rest of the stuff in the water has to be put back into the beans.

Many favor the water process because the solvent never touches the beans. But less than ten parts per million of the dichlor stay in the beans after roasting, and for anyone who ever walks into a chem lab or fills their own car with gasoline that is a pretty insignificant risk.

Decaffeinated coffee won't be any better for your ulcers, nor for your cholesterol.

How Taken

In alcohol, as a liqueur: Kahlua, Tia Maria, Bahia.


HONORÉ DE BALZAC
Ici
un Rembrandt

RALPH BARTON, HONORÉ DE BALZAC, 1928

CORRESPONDENCES

MACHINE	Calculator
METAL	Silver
METAPHOR	Measure
MINERAL	Steatite
MUSICAL INSTRUMENT	Boatswain's whistle
MYTH	Golden Fleece
MYTHIC HERO	Faust
NUMBER	Zero
OCCUPATION	Banker/Philosopher
OUT-OF-BODY REALM	Realm of Infinite Structure
PERIODIC TABLE COL.	Carbon
PHASE OF COITUS	Arousal
PHASE OF MATTER	Gas
PHYSICAL CONSTANT	Planck/*h*
PLANET	Sun
PLATONIC SOLID	Cube
POISON	Single Vision
QUARK	Up
QUANTUM FORCE	Neutrino
REALM OF PLEASURE	Brain
RITUAL EVENT	Caucus
ROCK	Granite
SEASON	Winter
SENSE	Cognition
SEXUAL POSITION	Missionary
SIGN	Canis Major
SIN	Pride
SOCIAL EVENT	New Job
TAROT KEY	Chariot
TIME OF DAY	Morning
TOOL	Chart/Map
VIRTUE	Fortitude
VOWEL	Middle Front/*e*

The Ally Balzac drank even more coffee than Voltaire—eighty to one hundred cups a day. He wrote more than one hundred novels.

> *Coffee falls into the stomach, and there is a general commotion. Ideas begin to move like the battalions of the Grand Army of the Republic on the battlefield. . . . The light cavalry of comparisons delivers charges, the artillery of logic hurries up*

with trains and ammunition, the shafts of wit start up like sharpshooters. Similes arise, the paper is covered with ink; for the struggle begins and is concluded with torrents of black water, just like a battle with powder.

—Honore de Balzac (1799–1850)

Signatures

Aromatic Colombia
Mellow Brazilia
Chocolatey Arabia
Spicy Yemen
Brisk Tanzania
Rich Kenya
Lively Puerto Rico
Walnutty Narino
Complex, cocoa-like Antigua
Smooth, buttery Kona
Nutty Mexican high-grown
Exotic, berry-like Harrar
Winey Zimbabwe
Well-rounded Indonesia
Floral Ethiopia
Light and earthy Java
Sweet Venezuela
Tangy Costa Rica
Soft-spoken El Salvador
Full-bodied, syrupy Sumatra
Vibrant and deep Blue Mountain, from Jamaica

Our culture, in a cup.

ummm, yeah, but
we're still waiting—
is coffee a good guy or a bad guy?

Poison.

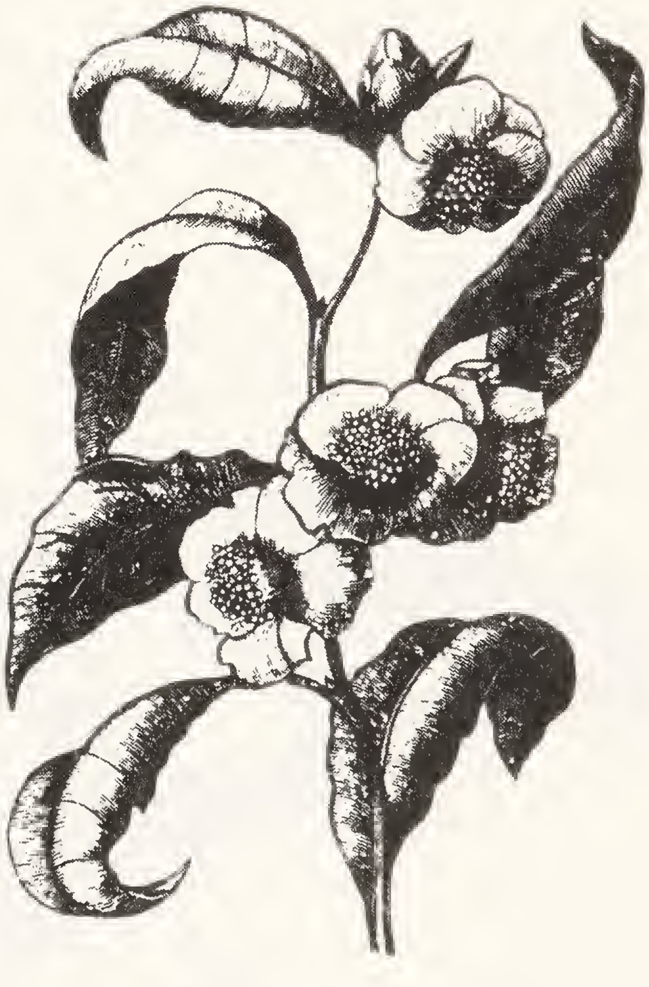
One of the greats.

CAMELLIA SINENSIS

Common Names Tea. Cha. Chai.

Part Used The leaves, cured and packaged in several ways, depending upon the type of tea to be produced. There are three main types: green tea, oolong tea, and black tea.

Green tea is "unfermented." As soon as the leaves are picked they are steamed (the Japanese way) or "fired" (the Chinese way—quickly cooked by hot air). The steaming or firing arrests any ongoing enzymatic activity in the leaf. A "quick kill," you might say. After that the leaves are "rolled." Rolling breaks up the internal cell walls. After rolling the leaves are dried.



TEA PLANT, FROM STRÄSSLE, NATURGESCHICHTE, 1885

Black teas are "fermented," and oolong teas "partially fermented." After picking, the leaves are allowed to "wither," to partially dry on racks, either in sun or in shade depending on style. Unless the leaves are partially dried they cannot be rolled. Enzymatic degradation occurs during withering, thus the best teas are withered in dry weather when the process only takes a couple of hours. "Rain teas" require longer to wither and are less preferred.

After rolling, the leaves are spread out in a cool and humid place to "ferment," to further oxidize. The effects of the two stages of oxidation are evidently different, perhaps because after rolling more of the constituents of the leaf, essential oils and so forth, are exposed and participate in the various oxidizing reactions. That is why leaves for black and oolong teas must not be "killed" before they are rolled, as green tea is.

The oxidation turns the leaves a coppery brown. Oolong teas are only allowed to partially oxidize, twenty to sixty percent depending on the particular type of oolong to be produced. For black tea the process is allowed to run to completion. After the leaves have fermented precisely to the degree desired, they are fired (somewhat longer than for green tea).

As a final step, the dried leaves are sorted and graded by size.

There are many local variations and refinements of the processing stages, especially in China. Some teas go through several sortings, so that small flakes can be processed separately from whole leaves. The world's great distinctive teas are the result not only of regional differences in the strain and the growing conditions of the trees, but also of the particular methods of the picking and curing.

Or, in the case of many commercial teas, not.

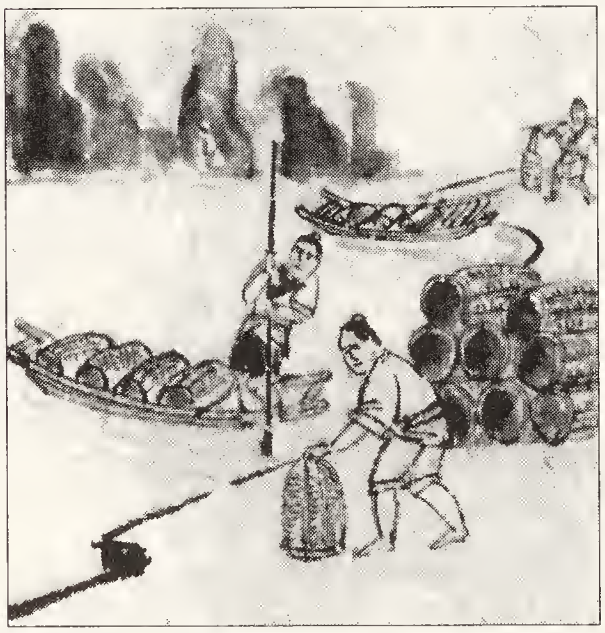
Signatures

Tung-Ting
Paper-Packed
Bright Virtue
Sour Box
Coniferous Evergreen
Harbor Tea

—some Taiwan teas, from Blofeld, Chinese Art of Tea

Taxonomy

Tea is native to Southeast Asia. Much of the history of tea in the West can be found in the story of its taxonomy. Linnaeus thought that black and green teas were different plants. This was a very excusable mistake, because all that Europeans knew about tea for two centuries they had to learn from the dried, cured leaves they traded from the Chinese. The Chinese had a monopoly and they guarded it carefully. It wasn't until 1842, by which time tea was the largest single item of English import, that a rather remarkable English ethnobotanist named Robert Fortune traveled in disguise to the interior of China to see live tea plants, collect voucher specimens, and correct Linnaeus's mistake. Black and green tea come from the same plant.



TRANSPORTING BALES OF TEA

Earlier, in 1823, another adventuresome ethnobotanist named Robert Bruce, living with the indigenous people in Assam, had discovered that they drank a tea from a native plant. After initial misidentification as another species of *Camellia,* an herbalist of the Linnaean Society correctly identified it as tea. Bruce mapped a hundred and twenty stands of the wild Indian tea plant, exploring Assam to the borders of Burma and China. The Chinese tea plant, *Camellia sinensis var. sinensis,* is bushy. The Indian tea plant, *Camellia sinensis var. assamica* is a tall, rangy tree. Bruce thought that Assam tea could be cultivated, but his employers, the British East India Company, disagreed. Tea tasters judged it "harsh" and "burnt." Instead, in 1851, they sent Robert Fortune back to China and this time he returned with 12,000 tea plants. Reasoning that Chinese tea would grow at the same places where the wild Assam trees grew, they uprooted the groves that Bruce had discovered and planted Fortune's Chinese trees, none of which ever produced any worthy tea.

The Company had already fired Robert Bruce for his daft preoccupation with wild tea. In 1853 however, his successor, George Williamson, decided that Bruce had been right all along and began planting the native broad-leaved *var. assamica.* The Company learned the fine points of tea cultivation by translating a book that was more than a thousand years old, Lu Yü's *Book of Tea.* We'll return to Lu Yü in "History."

By 1860 the Assam tea industry was well established. Assam trees were planted in Ceylon and Java. Today more Indian tea is grown than Chinese tea.

Tea was formerly placed in its own genus, *Thea,* but is now included within the camellias. Other *Camellia* species, such as *Camellia rosiflora* and *Camellia japonica* are grown as ornamentals.

Signatures

Ceylon Orange Pekoe
Earl Grey
Darjeeling
English Breakfast
Lapsang Souchong
Lady Londenderry

Chemistry and Pharmacology

Tea contains caffeine, twice as much by dry weight as roasted coffee beans. But since six grams of beans go into a cup of coffee, compared to around a gram and a half of tea, a cup of tea usually contains only about half as much caffeine as a cup of coffee. Other than caffeine, the chemistry of the two plants is quite different.

IRONSTONE POTTERY TEA LEAF DECORATION. A WHOLE LEAF AT THE BOTTOM OF A CUP WAS CONSIDERED AUSPICIOUS

Fresh tea leaves contain 22% polyphenols, 17% protein, 4% caffeine, 27% crude fiber, and small amount of β-carotene, B vitamins, vitamin D, and ascorbic acid. The vitamin C remains present in green tea, but is destroyed by the roasting and fermenting of black teas. The tannins in tea may be its most toxic constituent, linked in some studies to esophageal cancer. Milk or cream binds to the tannins and mitigates the danger. On the other hand, by stimulating the digestion, tannin combats the effects of consuming oily or fatty foods.

Catechin and other compounds in green tea are thought to be anti-oxidative and anticarcinogenic. It is said that anyone who smokes cigarettes should drink green tea daily.

Just don't think that will save you.

Recent studies (*Science News* 2000) have found that the rare and delicate white tea is even more potent as an antimutagen than is green tea, sometimes by a factor of five.

Some of the phenols in the essential oil are dangerous, though in a minimal sort of way. The reputed effects of the essential oils in calming the nerves probably far outweigh the dangers, unless the quantities involved are excessive. Tea also contains small amounts of theophylline, a strong diuretic, and a more powerful CNS stimulant than caffeine. Theophylline is used for treating asthma and emphysema.

Tea is contraindicated for insomniacs, and perhaps for the manic.

Signatures

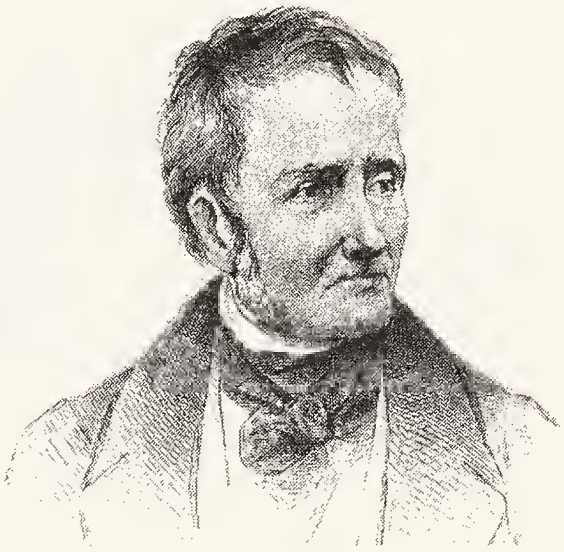
Silver Needle
White Peony
Noble Beauty

—rare white teas from Fukien

How Taken Drunk as an infusion. In Thailand, leaves of wild *Cammelia sinensis* trees, called *miang,* are sold in the markets for chewing, like betel. The leaves are folded and chewed with a piece of rock salt. The effects, according to Rob Montgomery, are "like drinking five cups of green tea all at the same time."

Effects Quickens the spirit and soothes the stomach.

The Ally



THOMAS DE QUINCEY, TEA DRINKER, POISON PATH ADEPT

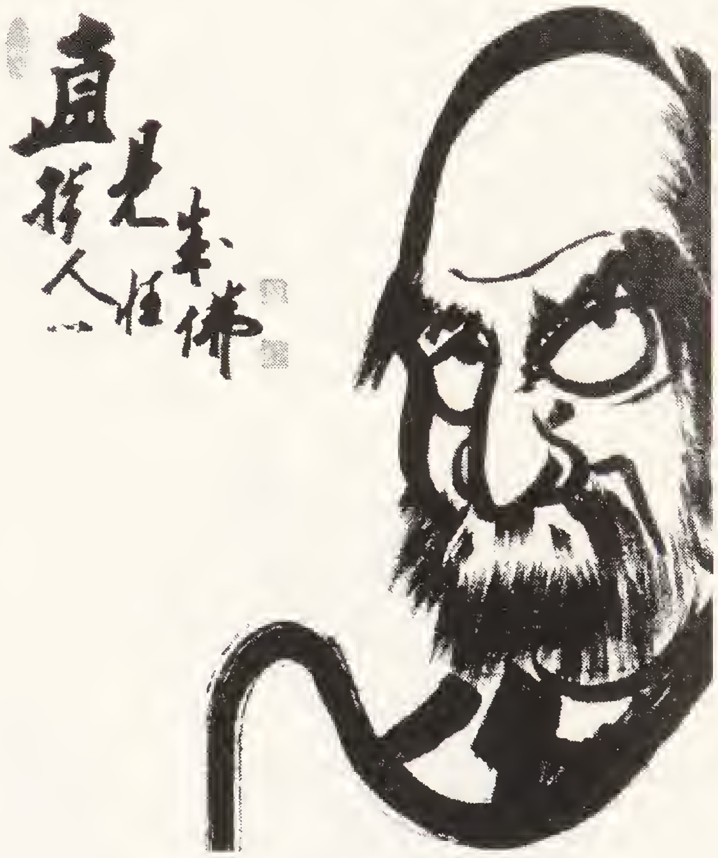
Surely every one is aware of the divine pleasures which attend a wintry fireside: candles at four o'clock, warm hearthrugs, tea, a fair tea-maker, shutters closed, curtains flowing in ample draperies to the floor, whilst the wind and rain are raging audibly without.

—Thomas De Quincey, Confessions of an English Opium-Eater

The Plant One story tells that tea was discovered in 2737 BCE by Shên-Nung, the legendary plant doctor who could test scores of poisons in his own body in a single day and find antidotes for each of them. The great doctor was boiling water to make his dinner when some tea leaves were blown into the kettle by the wind. He drank the infusion, felt refreshed and invigorated, and recognized the plant's sublime virtues.

Shên-Nung was a Taoist sage, though long before Lao Tzu or Chuang Tzu had articulated Taoist philosophy. The ancient Taoist sages were plant people. Taoist emphasis on individuality and freedom contrasted with the Confucian ideals of hierarchy and duty (though Confucianists might term them "harmony" and "tradition"). Confucianism was stronger in northern China, Taoism in the south, and the south was the land of tea. And it was in southern China that Taoism—with its emphasis on emptiness and the yin—was most assimilated into Buddhism as Ch'an (Zen, in Japanese). Thus another story relates that tea was a gift of Bodhidharma, the Indian sage who "came from the west" and founded Ch'an Buddhism.

When Bodhidharma first arrived in China he was called before Emperor Wu. Wu was a scholar as well as a warrior. After he had overthrown his lord and set up his own kingdom in southern China, he became a great patron of religion. He was particularly interested in Buddhism, so when he heard that a great sage had arrived from India he was anxious to meet him. By the end of the interview his feelings may have changed.


HAKUIN, DARUMA (BODHIDHARMA)

> *Emperor Wu asked: "I have endowed many temples and aided many monks, what is my merit?"*
> *Bodhidharma said: "No merit at all."*
> *Wu tried again: "What is the first principle of the holy teaching?"*
> *Bodhidharma answered: "Vast emptiness, nothing holy."*
> *Wu asked: "Who is this confronting me?"*
> *Bodhidharma answered: "I don't know."*

After the interview, Bodhidharma traveled to the north. He crossed the Yellow River on a reed and retired into the mountains to Shao-Lin temple, where he sat for nine years facing a wall.

Once, after four years of sitting, overcome by fatigue, the Bearded Barbarian fell asleep. To prevent the recurrence of such a lapse, he cut off his eyelids and threw them to the ground. From the ground grew two tea plants, with leaves shaped like eyelids.

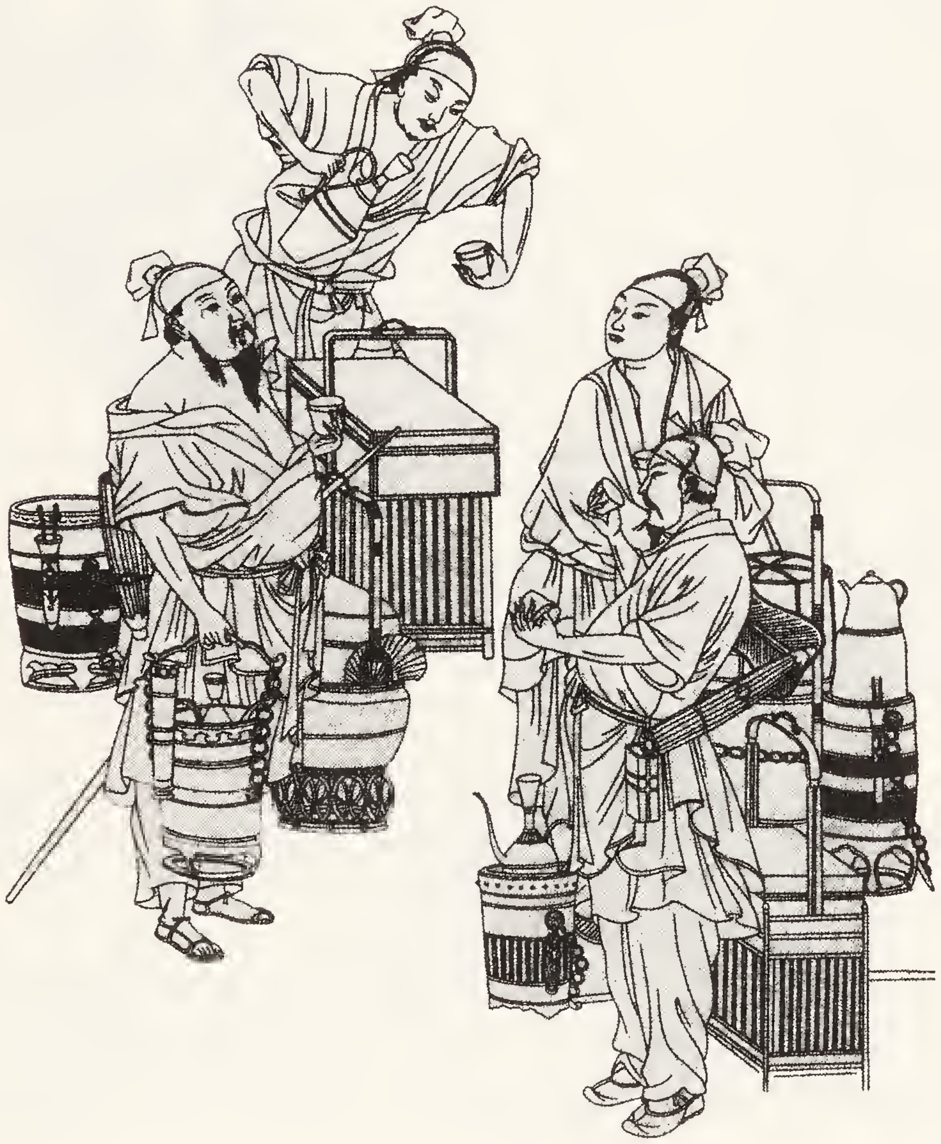
> *Some say that at the end of the nine years Bodhidharma's legs fell off.*

That drinking tea is attested in a Chinese document three centuries before Bodhidharma's arrival in 542 in no way diminishes the truth of the story: it was in Buddhist temples that tea drinking particularly flourished and spread.

The Ch'an sect made tea drinking a part of their ritual. They offered tea to the Buddha, and shared tea from a passed cup. Pai-chang, the early T'ang teacher who instituted the distinctive nonhierarchical organizational structure that first defined Ch'an as an independent sect, was said to have included rules regarding tea drinking. Pai-chang broke with Buddhist tradition and made farming and other work a regular part of monastic practice. "A day without work is a day without eating," Pai-chang (called Hyakujo in Japanese) also gave some thought to the law of cause and effect, and is perhaps best known for once giving a full Buddhist funeral for the body of a fox.

So . . . how does a fox drink tea?

Tea appears in a number of Zen stories, mondos, and koans. Chao-chou said, "Have a cup of tea" to three different monks. Tung-shan once ran out of strength while cultivating a tea plot with Shen-shan. Lin-chi liked to bury people alive while he tilled tea. Yün-yen parched tea, with good fortune. Tsü-fu enjoyed tea after rice. Elder Lang once spilled tea and created a ruckus with the kettle gods.



YUAN DYNASTY TEA VENDORS

Many Ch'an temples were in the mountains, ideal tea country, and many such monasteries cultivated tea and processed the leaves. If not an actual cash crop, tea was at least a refined and valuable commodity to offer visiting dignitaries and prospective patrons.

Kuei-shan, who is also known for his friendship with "Iron Grindstone" Liu, the mountain nun, once beat the drum to signal for everyone to go out and work in the tea garden. After everyone had been picking tea leaves all day, Kuei-shan said to Yang-shan, "All day as we were picking tea leaves I have heard your voice, but I have not seen your essence. Show me your original self." Yang-shan grabbed a tea tree and shook it.

Kuei-shan said, "You have attained only the function, not the essence." Yang-shan answered, "I wonder how you would answer the question?" Kuei-shan was silent. Yang-shan said, "You have attained only the essence, not the function." Kuei-shan responded, "I absolve you from twenty blows."

—Transmission of the Lamp

Pre-T'ang tea was probably used medicinally more often than socially. A piece of writing dated the year 222 mentions tea as a substitute for wine. Early tea was boiled, usually along with rice, ginger, orange peel, other spices, and even milk.

Effects According to the Taoists, tea relieves fatigue, delights the soul, strengthens the will, and repairs the eyesight. Tea was an essential ingredient in the Elixir of Immortality.

The Plant

It was in the eighth century, in the creative years of the T'ang dynasty, that tea-drinking came fully into its own: drunk for its own sake, recreationally we might say, and not just as medicine. Tea's medicinal values were certainly recognized, not the least being that boiled water was safe to drink. Tea drinking diminished the spread of water-born infectious diseases, resulting in lowered mortality rates and a rapid expansion of the Chinese population. T'ang tea was pressed into cakes, from which it was shaved off and boiled. Tea cakes were even used as currency. Cake tea spread by caravan to Mongolia, Tibet, and Turkestan, places where it is still drunk in that form today. (The Russians also drink cake tea. While western Europeans were getting their tea by sea, the Russians were importing tea three thousand miles by caravan from Kayakhta, south of Lake Baikal on the Mongolian border, and itself a thousand miles across the Gobi desert from Peking. By 1796, at the end of the reign of Catherine the Great, Russians were consuming six thousand camel loads of tea per year.)

Perhaps because of the ceremonial drinking of tea in the monasteries, brewing, serving, and drinking tea began to be viewed as an art form, a social art. This ritualistic aspect of tea drinking became fully developed in China during the Sung period. From Sung China, powdered tea spread to Japan, where it reached an apotheosis in *chanoyu*, the tea ceremony.

The Ally

> *Teaism is the art of concealing beauty that you may discover it, of suggesting what you dare not reveal. It is the noble secret of laughing at yourself, calmly yet thoroughly, and is thus humour itself—the smile of philosophy.*
>
> *—Okakura Kakuzo, The Book of Tea*

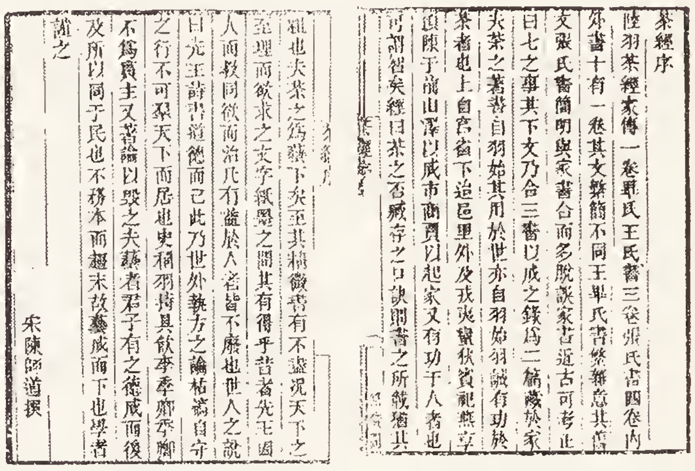
The T'ang nobility took to tea as high culture, and a tea tribute was imposed on the mountainous communities where tea was cultivated or grew wild. The finest leaves went to the Son of Heaven himself. One prized variety was called "Monkey Tea." It was made from the top leaves of wild tea trees that grew deep in the mountains and could only be picked by trained monkeys.

TEA LABORERS

By the end of the eighth century, 30,000 people were needed to pick, steam, dry, roll, and prepare the tea tribute, work that lasted for a month. The mountain people were forbidden to sell tea themselves.

Something about governments . . .

The demands on the farmers and villagers became even more severe in the following centuries, when tea cakes became the Central Country's main trading commodity for the northern tribes, from whom they needed horses. In the Sung, tea cakes became a kind of foreign aid, a means of bribing and pacifying the wild nomads on the frontiers. A bureaucratic blunder or failure in the tea crop could even trigger an invasion.



茶經序
陸羽茶經家傳一卷畢氏王氏書三卷張氏書四卷內
外書十有一卷其文繁簡不同王畢氏書繁雜意其舊
文張氏書簡明與家書合而多脫誤家書近古可考正
自七之事其下文乃合三書以成之錄爲二篇藏於家
夫茶之著書自羽始其用於世亦自羽始羽誠有功於
茶者也上自宮省下迨邑里外及戎夷蠻狄賓祀燕享
預陳于前山澤以成市商賈以起家又有功于人者也
可謂智矣經曰茶之否臧存之口訣則書之所載猶其
粗也夫茶之爲藝下矣至其精微書有不盡況天下之
至理而欲求之文字紙墨之間其有得乎昔者先王因
人而教同欲而治凡有益於人者皆不廢也世人之說
曰先王詩書道德而已此乃世外執方之論枯槁自守
之行不可羣天下而居也史稱羽持具飲李季卿季卿
不爲賓主又著論以毀之夫藝者君子有之德成而後
及所以同于民也不務本而趨末故藝成而下也學者
謹之
宋陳師道撰

THE BOOK OF TEA (CH'A CHING)

In the late eighth century a stuttering poet named Lu Yü composed the great classic of tea, the *Ch'a Ching*. This was the book translated a thousand years later under George Williamson. The *Ch'a Ching* was a three-volume work that covered every aspect of T'ang tea culture: botany, cultivation, grading, descriptions of the implements used in preparation and brewing, and anecdotes about famous tea drinkers. The *Ch'a Ching* became the bible of tea. Lu Yü was said to be able to identify not only any tea he was offered but also the source of the water in which it was boiled. His skill was tested by the emperor himself. Lu Yü was always a disappointment to his father, because he had embraced Confucianism instead of Buddhism.

Lu Yü eliminated all of the additives to tea except salt, which continued to be added to tea until the Sung. He thought it abominable to add even jasmine blossoms to tea. He wrote that the best water was from mountain springs that flowed over rocks with no moss. Mountain springs with moss were second best, followed by river water, and then well water. He considered blue the best color for the interior of a tea cup.

Another T'ang poet who loved tea was Lu T'ung, the "Tea Doter." Lu T'ung was enough of a Taoist adept to declare that compared to the taste of tea, he didn't care a bit about immortality. Days and evenings alike he brewed tea and composed poems, including his famous "Song of Tea."

The first bowl cleanly moistens my lips and throat;
The second banishes my loneliness;
The third chases through all dullness
To clarify every word I've ever read.
The fourth brings on a light sweat
That cleanses away life's troubles.
The fifth purifies my soul.
The sixth beckons me to the Immortals.
The seventh is my limit,
A light breeze breaks from my sleeves.

As T'ang tea bowls were wooden containers not at all small, we can recognize Lu T'ung as a master of our Method.

How Taken For those inclined to excess, those drug abuser types who are not already insufflating caffeine U.S.P. intranasally, tea is really a better beverage than coffee. Though there is less alkaloid per cup in tea, one can consume cup after cup without, as would be the case with coffee, liquefying one's insides.

The Plant Tea's popularity continued to grow through the T'ang and into the Sung dynasty, 960 to 1279 CE. The tea-house appeared. Tea contests were popular: "four teas, ten cups," in which connoisseurs vied to identify different teas in blind tastings. There was a "Tea Emperor," Hui Tsung, who wrote his own detailed and erudite book on twenty different kinds of tea, including the rare "white tea," his favorite.

Hui Tsung also dabbled in poetry and painting, with some accomplishment. He fell in love with a famous courtesan and shocked his country by exiling her husband and bringing her into the Palace to join his 3,912 wives and concubines. As she was obviously not a virgin, most considered this going too far. He spent so much time worshipping his muse that he neglected his kingdom. Affairs of state declined, and he was eventually deposed by invading Tartars and exiled.

How remote were those youthful dreams of mine
From this sad Mongolian wilderness!
Ah, where are the hills of my homeland?
I must bear the cacophony of barbarous flutes
Blowing piercingly among the plum blossom.

—Hui Tsung, tr. by John Blofeld

There was no good tea in Mongolia. There is a moral in this story. Let it be a lesson to you.

In the Sung, there were forty-six Imperial tea plantations, mostly in the south. The best picking time was the month of Excited Insects, and the best tea was picked at dawn before the dew had evaporated. Most of the pickers were girls and young women, who had to keep their fingernails cut to a very particular length, so that their fingers would not touch the leaves. They entered the fields before dawn to begin the picking, timing their movements to the music of drums and cymbals.

Tea-leaf picking:
she ties on her bamboo hat,
glances in the mirror.

—Shiko

"Small bud" and "medium bud" (a single leaf on each stalk) were the top grades. These were sent to the Emperor. "Purple bud" (two leaves on a stalk), "two leaves with bud," and "stem tops" were the three lesser grades.

Something . . . familiar sounding.

The leaves were fired as soon as they were picked. As soon as they were rolled and dried they were rushed to the palace by relays of horses.

The Sung was the golden age of tea in China. They recognized thirty-six different grades. Sung Chinese drank their tea powdered, whipping it up in a bowl with a bamboo whisk. Sung ceramics, the elegant tea bowls with the famous rabbit's-fur glaze, have perhaps never been equaled. Art and science both flourished. They printed books with movable type. They used gunpowder for blasting and to fire rockets and projectiles. They invented the curved iron plow, discovered the magnetic compass, and constructed the largest and most accurate water clock ever seen in the world. Their skills in medicines would not be equaled in the West for eight centuries. The extensive civil service was open to anyone who could pass the written examination covering science, art, philosophy, and history, providing a merit-based system for entrance into the government.

. . . and employment for a large number of poets

This golden age was to come to an abrupt end when, in distant Mongolia, Genghis Khan's mother encouraged her son to settle some scores and unite the tribes.

TEAPOT, CHINA, CH'ING DYNASTY, BASED ON MING DYNASTY MOTIFS. THE SCENE DEPICTS A SCHOLAR SETTING OUT TO VISIT FRIENDS, IN THE COMPANY OF A BOY SERVANT CARRYING HIS CH'IN, A STRINGED MUSICAL INSTRUMENT.

After a hundred years of Mongol rule, the Ming dynasty was founded in 1368 and tried to reestablish the historical Chinese traditions. Ming Chinese drank loose leaf tea, but the art of whisking powdered tea was preserved in Japan.

Drinking tea, eating rice,
I pass my time as it comes.

—Pao-tzu

How Taken

If one's guests are in a boisterous mood, it is better to give them wine to drink and, if they get somewhat tipsy, follow this up with a pot of very ordinary tea. It is only in the company of one's own kind, just those close friends with whom one can talk quietly about anything under the sun without formality, that one should call the serving boys to bring in the stove, fetch water and brew up some tea.

—Ming dynasty tea manual, quoted in Blofeld, The Chinese Art of Tea

Signatures:

Dragon's Well
Lion's Peak
White Cloud
Old Man's Eyebrows
Purple Snout
Snow Gorge
Jewelled Cloud
Sun-Poured
Green City
Hidden Peak

—Chinese green teas

The Plant

Tea was brought to Japan by Buddhist monks. At the beginning of the ninth century, three monks, Saicho, Kukai, and Eichu, each returned to Japan from China, bearing various strands of Buddhism and also the brick tea of the T'ang culture. Saicho served tea to Emperor Saga, a Sinophile who soon made tea a regular part of court life. Tea was served to Buddhist monks visiting the palace. Tea became featured at poetry parties, where the guests composed linked-verse renga. But when Saga died, the brief flowering of tea culture faded, except in the monasteries where the use of dancha, brick tea, was preserved.

The final successful landing of tea on the Japanese islands occurred several hundred years later, in 1191. A monk named Eisai had gone to China to study Ch'an Buddhism. When he returned he founded Rinzai Zen. Eisai brought back the Sung powdered tea, *matcha*, and wrote a book about its medicinal values. He also brought back seeds, which he planted at several locations. Eisai's plantations flourished, and one of them is still renowned for its fine tea.

Zen also flourished, the samurai class especially taking to it. Perhaps the directness and immediacy of Zen, along with its highly disciplined codes of behavior, appealed to the warrior spirit. Perhaps also, in the elegant sociability of tea, the samurai found a tempering to the blood-letting inclinations of their blades. Zen gave them a spiritual discipline, and tea gave them poetry and culture—things true soldiers must certainly crave.

The Ally

> *In our common parlance we speak of the man "with no tea" in him, when he is insusceptible to the serio-comic interests of the personal drama.*
>
> *—Okakura Kakuzo*

A man with no poetry.

> *Again we stigmatize the untamed aesthete who, regardless of the mundane tragedy, runs riot in the springtide of emancipated emotions, as one "with too much tea" in him.*
>
> *—Okakura Kakuzo*

Or those clinging to High Art, devoted to protecting the "finer values" while, around them, injustice and exploitation are rampant. Mao wrote a tract about that.

Signatures

Keemun
Fukien Red
Szechuan Red
Yunan Red
Crane Cliff Red
Sun and Moon Red

—Red (black) teas from China

The Plant

Tea in Japan is a story of poetry, a story of flowers and swords, and a story of Zen. The aesthetics articulated by the hokku and *renga* poets shaped the tea-house, and most of the poets were students of Zen.

The drinking of *matcha* tea spread from the temples to the general population all through the Kamakura period, (1185–1333). Zen temples sponsored large tea-drinkings for certain celebrations, to which the local townspeople were invited. The aristocracy likewise revived tea drinking, and tea contests appeared again. Tea became a central feature of summer bathing parties. The guests soaked in hot water, drank tea and sake, and composed renga poetry while local villagers came and gawked.

In the Imperial Court, many of the Zen rules (*sarei*) were adopted as part of the etiquette. Zen aesthetics were adopted as well. Calligraphic scrolls were displayed in Chinese-style rooms. Chinese bowls and utensils, expensive and highly valued, were displayed for the guests.

The idea that the serving of tea could be a spiritual path came from Murata Jukō, a student of the great poet and iconoclastic Zen master Ikkyū (1394–1481). Ikkyū encouraged Jukō's interest in tea, believing that tea could be used as "skillful means" on the Buddhist path, and presented Jukō with a valuable scroll of calligraphy by the Ch'an master Yüan-wu as a certification of his attainment.

Ikkyū asked Jukō, "What is the essence of tea-drinking?"
Jukō said, "It is Eisai's Quiet Mind of Tea-drinking."
Ikkyū said, "What about Joshū's tea?"
[Chao-chou said, "Have a cup of tea."]
Jukō was silent.
Ikkyū asked for a cup of tea. When it was presented to him, Ikkyū shouted "Katsu" and smashed it with his rod.

In 1482, during the Higashiyama epoch when various warlords were fighting for control, the eighth shogun, Yoshimasa, built himself a small, separate room for tea, where he could escape from the palace and meet with friends in a more intimate setting. Although conclusive proof is lacking, it is generally accepted that Yoshimasa's tea master was Jukō, and thus Jukō is credited with establishing the four and a half tatami-mat tea room as the standard.

The Ally

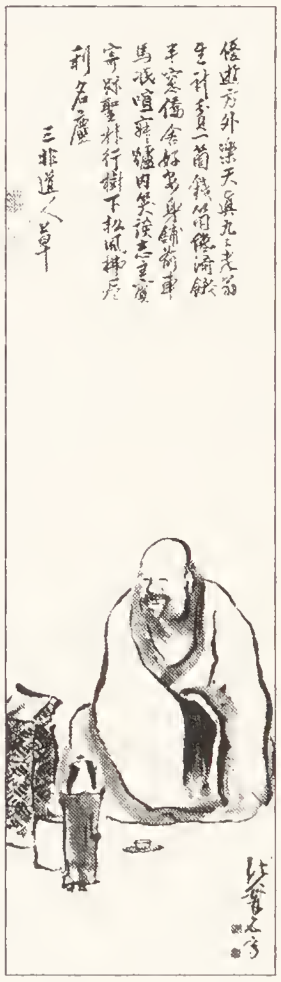
Autumn is near—
I feel the pull
of the four-and-a-half mat room.

—Bashō

History

Yoshimasa's tea room contained a *shoin,* a low built-in writing desk, and some asymmetrical shelves. There was a leanness, a sparseness to the new tea room that reflected the emerging aesthetics of *renga* poets, such as Sogi and Shinkei. Jukō called this leanness "chill."

Sabi, a feeling of poverty and solitude, was an ideal of Japanese poetry as early as Saigyō, and was rooted in the T'ang and Ch'an poetry of China. To *sabi* was added *yūgen,* a sense of the profound and subtle, and a celebration of what Shinkei called "the withered, the stunted, the cold." It is likely that Jukō knew Shinkei, and Jukō's "chill" was certainly influenced by Shinkei, who was also a Zen practitioner. These different modes, *sabi, yūgen,* and later *wabi,* became another way to "link" haikus into *renga.* Shinkei called linking *renga* through mode "remote linkage," as contrasted with the "close linkage" through image. The distinctions between the various forms of remote linkage became highly refined and articulated.


FROM
CHANOYU
KAIGA SHIRYO
SHUSEI

Lotus leaf dewdrops—
all I need
for morning tea.

—Issa

Ikkyū distrusted blind adherence to rules, and Jukō followed his lead. Jukō sought to erase the distinctions between Chinese treasures and locally made Japanese pottery. He also tried to incorporate the Buddhist ideal of equality into tea, hoping that the tea room might be a place where people could drink tea together as peers, without regard to the usually rigid distinctions of class and birth.

No host. No guest.

Ikkyū would certainly have approved this idea, as also Jukō's shift in emphasis onto the drinking of the tea itself, rather than on the connoisseurship of Chinese objects of art, which was the prevailing practice of both the nobility and the merchants.

A generation after Jukō, Takeno Jōō (1502-1555), another Zen tea master, further refined Jukō's ideas. Jōō thought that "chill" was too aristocratic, and that "leanness" had degenerated into the mere mixing of disparate objects. Again taking his lead from the poets, Jōō created *wabi* as the aesthetic ideal of tea. *Wabi* has many meanings, and the meanings have changed through time, but its main innovation was to add "commonness" to the solitude of *sabi* and the sublimity of *yūgen. Wabi* comes as close as any word to describing the whole tone of Japanese aesthetic sensibility, from haiku to Nō drama to flower arranging. But it was one of Jōō's students, Sen No Rikyū, who brought *chanoyu,* the tea ceremony, to its greatest perfection.

The "thatched hut" image—the hermit monk living in poverty and solitude—had its roots in Chinese Buddhism and Taoism, and Chinese poetry. While the thatched hut had never been forgotten by the Japanese poets, it was perhaps honored more in theory than in practice, at least until Basho. But before Rikyū there had been little of the thatched hut in the refined perfection of the tea room. Rikyū added the thatch. He also lowered the door so that it was necessary to stoop to enter the room. He began using unfinished and even broken materials, natural surfaces, bamboo, and wooden utensils.

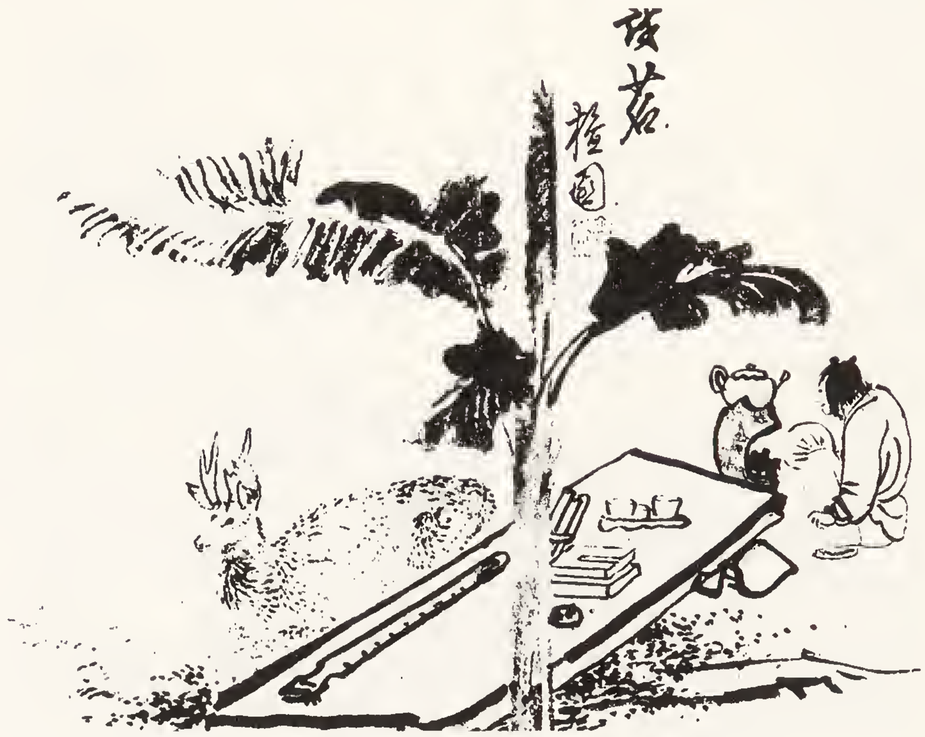
A celebration of imperfection.

But none of it was arbitrary. Rikyū stressed that finding the harmony between an unglazed bowl, the rarest and finest of Chinese vases, and a few cut flowers required the highest artistic sensibilities. As might be expected, this hyper-refinement of taste was eagerly sought after by the nobility (of which Rikyū—born merely into a wealthy merchant family—was not). Rikyū served as tea master under Odu Nobunaga, who had unified much of Japan. When Nobunaga was assassinated in 1582, Toyotomi Hideyoshi took control of Japan, and began completing the unification that Nobunaga had begun. Hideyoshi took possession of all of Nobunaga's valuable tea utensils, and also of his tea master, Sen No Rikyū.

Rikyū was one of the first tea masters to cultivate morning glories. When word spread of the many splendid morning glories blossoming in his garden, Hideyoshi

> *commanded a morning tea service to view them. When he arrived every trace of the vines had been cleaned out, and he entered the tea room in a smouldering rage. There in the alcove was a single morning glory, deeply tinged and exquisitely beautiful. Hideyoshi understood and was full of praise.*
>
> *—Pointing to the Moon, Sotan's Anecdotes of Rikyū's Tea*

Rikyū became known as the foremost tea practitioner in Japan. He also became the personal confidant of Hideyoshi. It was said that no one could speak with Hideyoshi without going through Rikyū. Rikyū's innovations in matters of tea, along with his stinging criticisms of those lesser practitioners whom he dismissed as having "no understanding," certainly made enemies.



TEA DRINKING: THE RUSTIC IDEAL

> *One time Hideyoshi tried to trap Rikyū with a seemingly impossible task. Hideyoshi filled a large bronze bowl with water and placed it in the alcove. Beside it he placed a plum branch with crimson blossoms, and ordered Rikyū to make the flower arrangement. Without hesitation Rikyū held the branch upside down over the bowl and stripped off the flowers by lightly pulling his hand down the branch. The open blossoms and buds floated together on the surface of the water. Hideyoshi appeared delighted, confessing that he had tried to embarrass Rikyū, but that the man could not be flustered. Other members of the court, however, thought that Rikyū's conduct towards his lord was presumptuous in the extreme.*
>
> *—adapted from Sotan: Pointing to the Moon*

Rikyū stressed tea as a means of attaining realization of the Buddha-dharma, one's conduct in the tea room being both proof and practice. But along with his Zen, Rikyū also preached Pure Land Buddhism, the Buddhism that teaches that salvation comes from the grace of Amida Buddha, rather than from one's own efforts (and, in fact, that striving for salvation is pointless, because Amida has already saved all beings, regardless of what they do). The effortlessness of Pure Land Buddhism merged seamlessly with the austerity of Zen in Rikyū's tea style. Some Jesuits, who were mixing in Japanese politics at the time, even claimed that Rikyū was a Christian. Rikyū scrutinized every detail of the tea ceremony: the garden, the hut, the laying of the charcoal, the precise placement of the utensils—

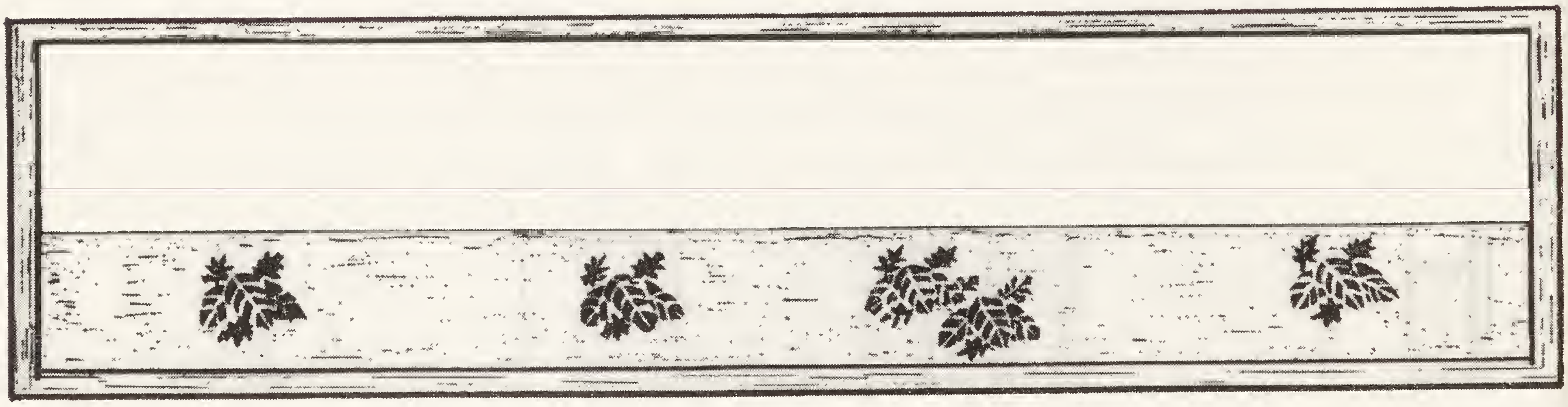
and critiqued the good or bad taste of each tradition or innovation—and he was an innovator. But above all he insisted that without naturalness and spontaneity the ceremony was a sham. That was the true lesson of tea.

> *As a general rule concerning the cleaning of the roji [the entrance garden, through which the arriving guests walked through on stepping stones], if guests are to come in the morning, one should sweep the previous evening; if at noon, one should sweep in the morning. After that, even if fallen leaves should collect, the accomplished practitioner will allow them to lie as they are.*
>
> *—Rikyū, in Sotan*

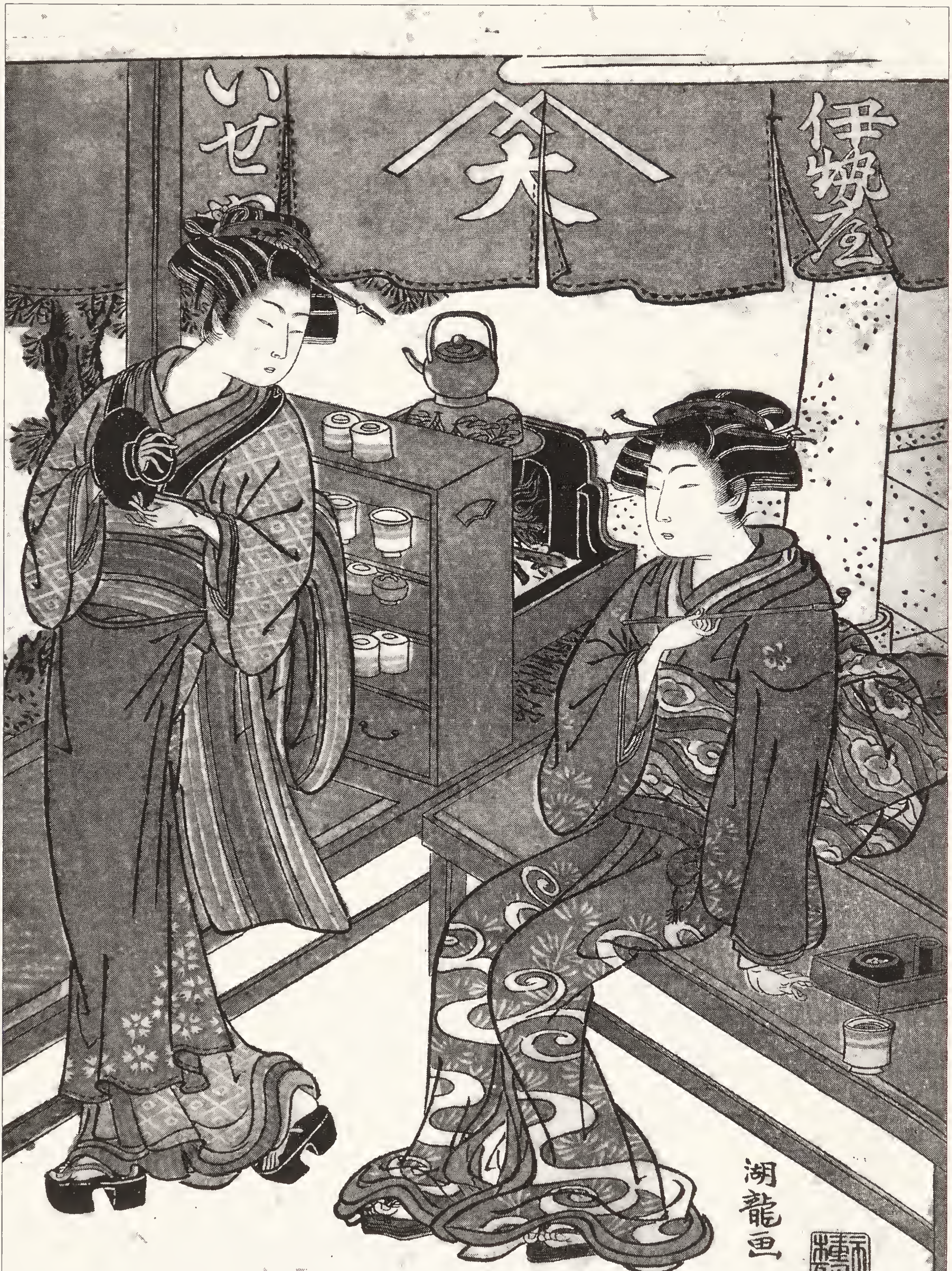
Rikyū eventually fell from grace. Having united Japan, Hideyoshi was making plans to invade Korea. Rikyū was in the dove party, advising against the plan. To make matters worse, his daughter had refused to become one of Hideyoshi's concubines. The final straw concerned the great new gate to the Daitoku-ji temple. Rikyū had promoted and supported this project earnestly, but as more and more of the funding was withdrawn in anticipation of the planned invasion, it began to appear that the gate might not be completed. Clearly exceeding his authority, Rikyū hired extra workers and had them work overtime to complete the construction. He also commissioned a wooden statue of himself to be carved and mounted over the gate. Rikyū's position at court had been slipping already—his principal defender had recently died—but now his fate was sealed. In 1591 Hideyoshi ordered him to commit *seppuku*, ritual suicide.

Rikyū held a last tea for his close disciples. After the tea he dismissed all of his guests but one. Rikyū removed his robes, revealing that underneath he was wearing the traditional all-white clothes of those about to disembowel themselves. He unwrapped the short sword, composed a death poem, cut himself open, and died.

> *Seventy years of life—*
> *Ha ha! And what a fuss!*
> *With this sacred sword of mine,*
> *I do kill both Buddhas and Patriarchs.*
>
> *—Rikyū's death poem*



RIKYU'S DESIGN FOR THE RAMMA (CARVED TRANSOM) OF THE SANGETSU-TEI TEA HUT AT OMOTESENKE IN KYOTO



CHANOYU KAIGA SHIRYO SHUSEI,
COMPILATION OF MATERIALS ON THE TEA CEREMONY

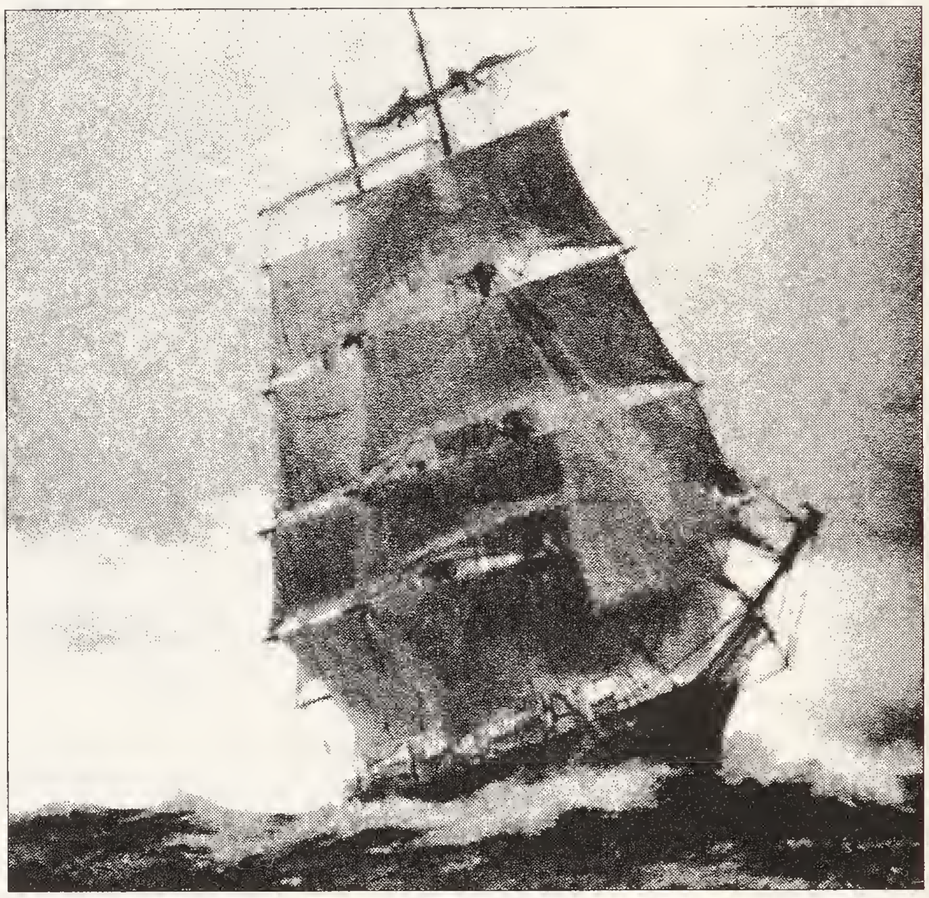
There. Now isn't that a better story than learning more about the pharmacology of caffeine?

> *Once, after Rikyū's enforced suicide, Hideyoshi came across an old brazier that intrigued him. He muttered softly that it was at such times that he felt the loss at having killed Rikyū.*
>
> *—Pointing to the Moon, Sotan's Anecdotes of Rikyū's Tea*

Signatures

Iron Goddess of Mercy
Hairy Crab
Buddha Hand
Iron Arahat
Iris Fairy
Great White
Black Heap
Red Border
Great Red Robe
Small Leaf
Booster
Clear Fragrance
Requiring Skill
White-Haired Monkey
Sparrow's Tongue
Lotus White
White Fur
Purple Fur
Dragon Phoenix

—semi-fermented (oolong) teas from the Wu-I mountains, from Blofeld



THE TEA CLIPPER CUTTY SARK

History

Tea was unknown in Europe until the latter sixteenth century. Arabian travelers visiting Canton had mentioned tea as early as 879, and Marco Polo made note of a Chinese official who was deposed for arbitrarily raising the tea tax, but these were lost fables. European contact with tea began during Rikyū's lifetime.

A Portuguese merchant, describing what he had seen in Japan in 1546, wrote that they enjoyed drinking "hot water." A Jesuit writer named Luis Frois, writing home from Kyoto in 1565, said the same thing. Perhaps neither of them ever drank any tea during their stays in Japan, though that would have been extraordinarily rude. More likely, drinking a hot beverage was so utterly exotic that they didn't realize that it was an herbal infusion. The myth that Japanese drank "hot water" persisted for some time. When some Christianized Japanese, visiting King Philip II in Madrid in 1585, mentioned that they produced wine in their country, the King was surprised, saying that he thought they only drank hot water.

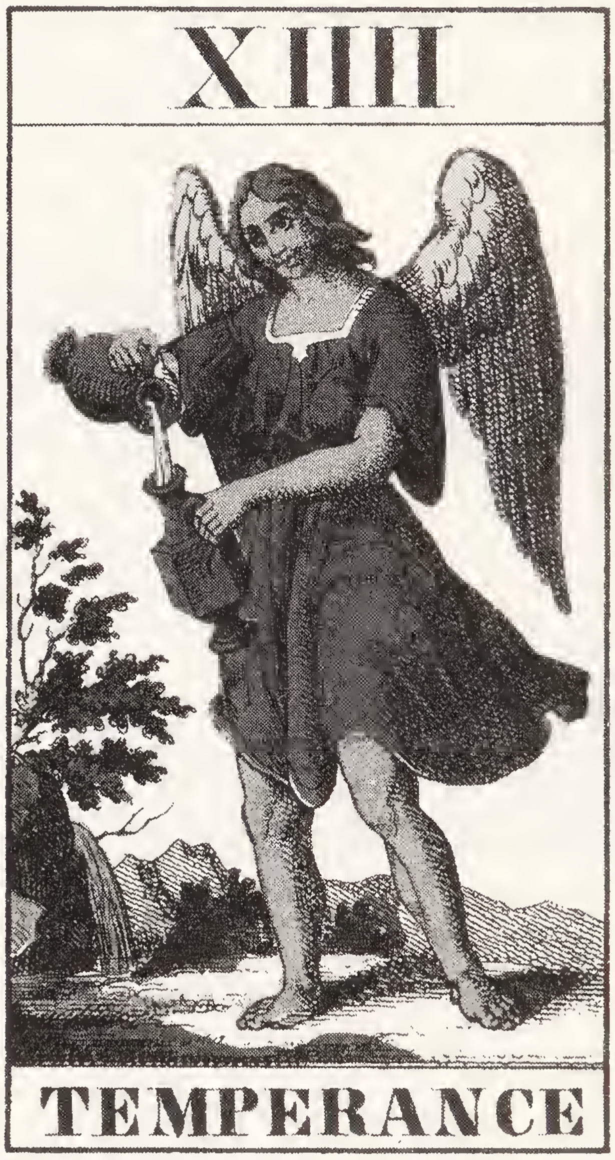
The first accurate description of tea drinking was written in 1565 by Luis de

Almeida, an experienced missionary who had also been trained in medicine. Almeida wrote of "a certain boiled herb, which is called *cha* and which is tasty to anybody who has become accustomed to drinking it."

As the Jesuits began to realize the importance of tea drinking in the life of their prospective converts, the missionaries were encouraged to become acquainted with the practice. Reports of *chanoyu,* the tea ceremony, appeared soon after in their writings, along with detailed instructions on maintaining a tea room and serving *cha.*

Tea arrived in Lisbon in 1580, and the Portuguese were the first Europeans to drink it. But the Portuguese trade with Japan was limited, and their whole venture was destined to come to an abrupt end. The missionary zeal of the Jesuits, as well as their predilection for mixing in local power struggles, was finally their undoing. The Japanese threw all of them out in 1641, and killed or forced recantations from the many thousands of Japanese who had been converted to Christianity. Japan closed her ports to all Europeans except the Dutch, who were allowed a limited trade at a narrow sandbar near Nagasaki, but were not allowed to go ashore. The isolation saved their country.

Japan's only import need was silk. For this they traded copper. The Dutch, in turn, traded the copper to China for silk. For tea, the Chinese wanted silver, or gold. All of the tea drunk in Europe came from China. All of it came through Canton.



Correspondences

> *The Present is the moving Infinity, the legitimate sphere of the Relative. Relativity seeks Adjustment; Adjustment is Art.*
>
> *—Okakura Kakuzo, The Book of Tea*

Thus the tarot card of tea is Temperance.

The Ally

> *Tea is in my opinion a phantasticum, coffee an energeticum—tea therefore possesses a disproportionately higher artistic rank. I notice that coffee disrupts the delicate lattice of light and shadows, the fruitful doubts that emerge during the writing of a sentence. One exceeds his inhibitions. With tea, on the other hand, the thoughts climb genuinely upward.*
>
> *—Ernst Jünger*

History

The Dutch were the first European tea merchants. From early in the seventeenth century until 1670 the Dutch East India Company was the richest corporation in the world, employing 20,000 sailors, 10,000 soldiers, and 50,000 civilians. The Dutch were challenged by the British East India Company, and by 1686 the British had overtaken them. The British East India Company soon held a virtual monopoly on the tea trade, which they maintained until 1834, when such monopolies became unfashionable.

Manchu China bore little resemblance to the sophisticated and cosmopolitan Sung. The government, foreigners themselves, distrusted other foreigners. European traders were restricted to a few docks in the harbor at Canton, and were only allowed to trade with a specially licensed group of Chinese middlemen, the *hongs*. For two hundred years, while the tea trade grew exponentially to become one of the largest single items of European commerce, the Europeans had no knowledge of where tea actually came from, how or where it was grown, what it looked like, or how it was processed. Perhaps such protective hoarding was contrary to the spirit of tea. The result, in any case, was the invasion and subsequent looting of China.

Signatures

Cloud-Burner
Height-Hater
Ten-Foot Green
Peony King
Drunken Concubine Yang
Handful of Snow
White Leaf
Spring Every Night
Trouser-Seat

—P'u-Erh teas from Yunnan

A Brief Meander through Opium

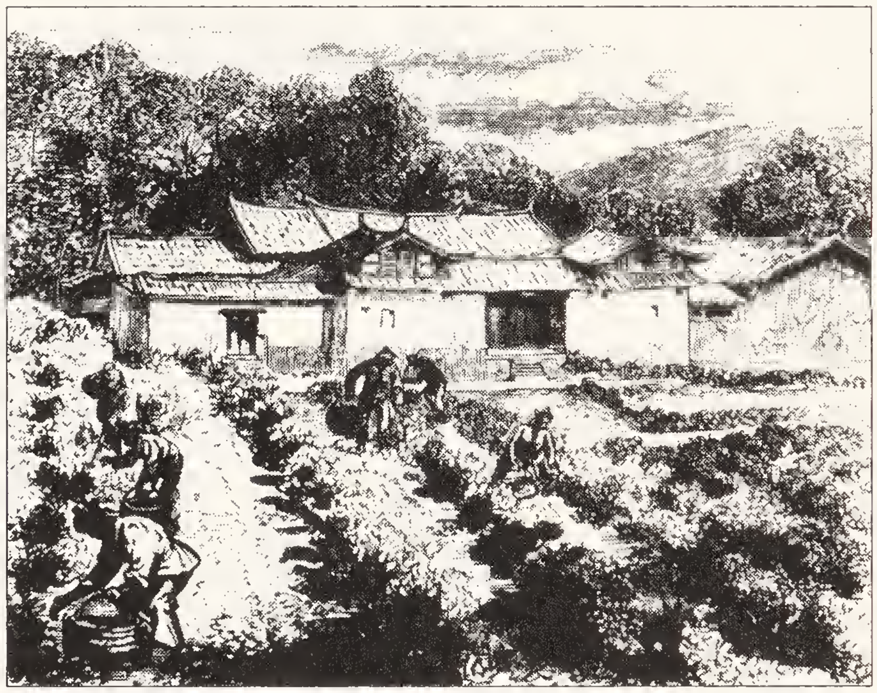
By the early nineteenth century, European inflation caused by the Napoleonic wars and by the strange attractors inherent in capitalism, had reduced the market value of tea relative to silver. And as the Chinese demanded silver for tea, the East India Company found itself in a severe economic squeeze. The Company found a nearly perfect solution in opium.

The British Government had given the East India Company completely free reign in India—the Company was a government unto itself. The priority of the East India Company was profit, not conquest. Nonetheless, by 1757, when the French and Indian War broke out, the Company had subjugated much of India, if haphazardly. A former clerk, Robert Clive, beat the French at the Battle of Plassey, and British control of India, and her monopoly on opium, was secure. Clive also seized the immense treasure trove that the regional Indian kings had been hoarding for centuries. This treasure, characterized as the largest cache of uncirculated wealth since Alexander captured the Persians, was the seed capital for England's Industrial Revolution.

China had outlawed opium in 1729, an anti-drug law that had as much to do with the Confucian moral and religious attitudes of the ruling mandarins as with public health issues. Some of the rationale may also have been economic. Either way, the law was tragically wrong-headed. Black market conditions meant that the British could demand silver for their opium.

The black market opium trade was originally in the hands of the Portuguese. When the English took over the trade at cannon point, it amounted to about 3,000 pounds of opium per year. Over the next century the British increased this trade to 3 million pounds a year. When the British government ended the East India Company's monopoly in the tea trade in 1834, the doors were open for American and other foreign ships to join in the tea and opium trades along with the British.

In 1840 the Imperial Government tried to stop the opium trade by force, burning warehouses in Canton and jailing British and Chinese traders. The British declared war and attacked China with both land and naval forces. China lost the war, and along with the war a great deal of her autonomy. More wars followed, for the next half century, each invasion by Western powers further weakening and disrupting the country. Culture and economy both declined. Chinese art treasures flowed to the West. Corruption was rampant. But even without the looting and the corruption the result would have been the same. When the economic forces of world-based industrialized countries are given uncontrolled access to a traditional culture, the result on the invaded country is always impoverishment.


TEA HARVEST. FROM DAY,
TEA: ITS MYSTERY AND HISTORY, 1978

That a country that had been one of the most advanced civilizations in the world for more than four millennia fell so easily is worthy of study. Other cases of advanced cultures falling to less advanced civilizations come to mind: the Conquest of Mexico, surely, and the Norman Conquest of 1066. Not that the Europeans of the nineteenth century were barbarians, but they had certainly been playing catch-up to the country that had been the technological leader of the world for most of their history.

It is important to be clear about the dynamics here. A state-supported monopoly power was able to produce cheap, commodified opium by force and threat of arms. Monopoly control of another drug, tea, by both trading partners, created an economic niche begging for exploitation. All of the dynamics revolve around the possibilities for profit in circumventing the strictures of a narrowly sanctioned monopolistic trade. None of it involved "free trade," if I may redefine free trade here as trade between two free partners, each with some semblance of autonomy.

Opium, per se, poses minimal threat to a healthy society. This is not true of corruption. Let's study this case carefully, as it is obviously still pertinent. The Chinese had lived with opium for centuries: it was a valued medicine and was used whenever appropriate. Commodified opium had entirely different dynamics, which were only made more destructive when the commodity was forced into the black market. It created gangs, corrupt officials, distrust and disrespect for the government, and finally, the virtual dissolution of the country.

Let's go further—I'm a little giddy from all this tea—
"and thus a need arose in history for Revolution . . ."

MARY CASSATT,
THE CUP OF TEA

◑

Effects

Stimulates circulation of the blood;
stimulates clear thinking and mental alertness;
increases the body's powers of resistance;
a cleansing and invigorating effect on the skin;
clears and facilitates the flow of urine;
brightens the eyes;
assists the digestion;
mitigates the effects of summer heat;
eases pains in the limbs and joints;
decreases secretion of mucus;
assuages thirst;
banishes depression;
promotes long life.

—traditional claims made for green tea, in Blofeld

The Plant

England could have grown coffee in her colonies, so why did the English change to tea? Some of the taste for tea probably emanated from Catherine. Charles the Second, the Restored, married Catherine of Braganza. She had learned tea drinking in Portugal, and had brought her taste with her to England. It is said that, Charles, if he did not love her deeply, nonetheless showed every concern for her happiness and made sure she was supplied with tea.

Venus her Myrtle, Phoebus has his bays,
Tea both excels, which she vouchsafes to praise.

—Edmund Waller, 1662, the first known English poem praising tea

Tea drinking at the Palace meant that tea would be drunk at the manors and estates. Still, coffee held on. Perhaps tea was more easily domesticated, was more easily a family beverage than coffee. Young human beings are deficient in the enzyme that metabolizes caffeine, and the stronger effects of coffee would thus be further magnified in the young. Morning tea along with a copy of The Spectator became an ideal of the "well-regulated household" as early as 1711.

But the coffeehouse still reigned as the center of intellectual (and business) activity. Addison, like Dryden and like Swift, even had mail delivered to his regular coffeehouse. Unlike them, he drank tea. The coffeehouses were not chauvinistic. Alexander Pope drank coffee. Charles de Quincey drank tea.

But the type for the tea-shaman was Samuel Johnson. Johnson liked to drink a cup of tea before he rose, and he liked to continue drinking tea throughout the day and evening and into the night, postponing the dreaded, if inevitable, hour of retirement as long as he could. Johnson hated being alone, especially at night. He said he could only bear solitude if he were reading or writing. Tea, so ever sociable, was his perfect drug. He'd drink a dozen cups at an evening gathering, and urge another pot from the hostess when he sensed the late hours creeping upon the other guests and threatening to bring the conversations to an end.

> *A hardened and shameless tea-drinker, who has for many years diluted his meals with only the infusion of this fascinating plant; whose kettle has scarcely time to cool; who with tea amuses the evening, with tea solaces the midnight, and with tea welcomes the morning.*
>
> *—Samuel Johnson, on himself*

Johnson was more like Ho Tai than Lao Tzu, though he dispensed vinegar rather than candies. Still, a widely disparate collection of artists, poets, and intellectuals liked him, or expressed admiration and respect if liking were out of the question for reasons of ideology. He lived simply and he was generous with what he had. He was said to be able to converse with charm and wit upon any subject, be it books, tea, gardening, social customs, or cats, that a hostess might bring up. Perhaps excepting children.

> *He had scant patience with people who would neither "lend dignity to falsehood, nor be content with truth."*
>
> *—Agnes Repplier, To Think of Tea*

He drank tea and tea and tea. He wrote what is probably the world's only readable dictionary.

> *So hear it then, my Rennie dear,*
> *Nor hear it with a frown,*
> *You cannot make the tea so fast*
> *As I can gulp it down.*
>
> *—Samuel Johnson*

Poesis

Methods of brewing tea vary according to culture, the type of tea being brewed, individual taste, and prejudice. Initiates can be extremely fussy, so the art is best learned from them directly.

That said, I do want to assert that green tea is best brewed with water that is not quite boiling, and that the first infusion should steep only a couple of minutes. The second and third infusions, and any thereafter, should steep no more than twenty or thirty seconds, not much longer than it takes to bring the teapot back to the table. Drink it from a bowl.

The leaves and any tepid leftover tea will wait patiently in the pot all day, to be revived by fresh hot water.

Don't try that with black tea.

History

The English drink tea with milk, Mongolian style. Perhaps the custom was passed through the Manchu leaders in China at the time of European contact in Canton. Or perhaps the English just came to it by themselves. The way they came to sugar.

A Brief Meander through Sugar

English sugar consumption began rising exponentially in the last half of the seventeenth century. Through the eighteenth century sugar consumption doubled every ten years. The curve of English sugar consumption matches closely that of English tea consumption. If we add chocolate consumption in with that of tea, well more than half of all the sugar consumed is accounted for.

Why they drank their tea this way is not clear—no one in China or Japan sweetened their tea. Perhaps it was for the extra energy rush, a "kicker" for the caffeine. Perhaps, following the poison path equation "either hydrocarbons or carbohydrates," sugar intake related to the growing English temperance movement, or to their lack of grapevines. Maybe the phenomenon is related to Protestantism, a need for something sweet to lighten the weight of moral severity, or to replace the sweetness of the Mass. Undoubtedly, many karmic links were involved, known and unknown, but the result is clear: the sweetening of tea plundered Africa, as the tea trade would eventually plunder China. The sugar trade established slavery on a scale unknown since the fall of Rome. It changed the New World forever, creating a social experiment of such far-reaching historical potential that its outcome is far from clear. Along the way, sweet tea created the United States.

A MAD TEA PARTY,
BLANCHE MCMANUS, 1896

Sugar cane (*Saccharum`officinarum*) is native to Polynesia. A seafaring plant, it had washed up on the shores of China and India and had established itself at least before 1000 BCE, when it is first attested. Sugar was first refined in India around 700 BCE in the Ganges valley, and spread from there into China and to points west, arriving in the Mediterranean in the Middle Ages. By the mid-seventeenth century, during the Mercantile Era, almost all of Europe's sugar came from the Caribbean, where the plant had first been introduced by Columbus. The first plantations were on Barbados, followed by Jamaica, Cuba, and later other islands. The Spanish controlled the area first. The Dutch and the French arrived next, but it was the English who eventually managed to become the dominant colonial power. By that time most of the once extensive indigenous Caribbean population had already died out (in slavery) or been exterminated. The few surviving Caribs the English did find they forcibly shipped to the Miskito coast of Nicaragua. All of the labor for the extremely labor-intensive production of sugar was captured in Africa.

Between 1680 and 1807, when the British abolished slave trading, several hundred ships were at sea on one or another leg of the "Triangular Trade" on any given day. Ships left England with firearms, beads, and salt, and traded them for slaves in West Africa. Packed with chained captives, the ships made the "middle passage" to the West Indies. The surviving captives were sold as slaves, the ship washed and refitted, and then loaded with sugar, molasses, and rum for England.

The number of slaves needed to produce sugar (the ratio of slaves to product) was always ten times that of cotton or tobacco. Life expectancy for slaves working sugar plantations was one-half that of a cotton slave. The cost of a slave was about that of a ton of sugar, and a slave, on average, produced about a tenth of a ton of sugar per year. Henry Hobhouse, in *Seeds of Change,* estimates that each teaspoon of sugar represented six days of a slave's life.

The English public was not completely silent about the slave trade—there was an organized opposition and certain firms advertised and sold "non-slave" sugar. Though estimates vary on the total number of slaves taken from Africa, three-quarters of them, some fifteen of the total twenty million, were bought for sugar. Nearly half of that sugar dissolved in tea.

A MAD TEA PARTY, HARRY ROUNTREE, 1928

The Ally

> *"Take some more tea," the March Hare said to Alice very earnestly.*

History

American ships were much less involved in the Triangular Trade, at least until the British got out—slaves bound for southern plantations were often purchased in the Indies. American ships come into the story in a different way.

The Navigation Acts prohibited American ships from trading in anything but British goods, except for American goods bound for England. New England traders responded by smuggling. The smugglers bought the sugar and molasses needed by the New England rum distilleries in the West Indies from the French. They bought tea from the Dutch. The English had taxed tea to where the duties amounted to half of its price, in England as well as in the Colonies. The high tax created a huge tea smuggling industry in England, which was hurting the East India Company. One-third of all the tea entering England was smuggled, and as a consequence the East India Company was left with a tea surplus. The government decided to help them out by letting them sell the tea directly to the Colonies, with only a small fraction of the previous duty-tax. The tax, however, would not be a British tax but a tax on the Colonists, and the tea sales would be an East India monopoly. The British hoped that by offering the Colonists cheap tea, the Colonists would accept the tax. This, as we know, did not occur.

Many Colonists were willing to go along with the new Act—after all, they would get to buy tea at about half the price it would cost in England—but the traders in the northeast were almost unanimously against it, particularly the smugglers (such as John Hancock). The cheap tea, for one, would hurt their profit margin. But more, the nature of the tax and the way it would be collected would make their whole business exceedingly difficult, if not impossible—all of the tea importing infrastructure would be in the hands of the East India Company. Sugar and rum might follow. Bostonians wearing blankets, feathers, and face paint threw the tea into the harbor, and similar protests occurred at five other ports. The Crown decided to up the ante by closing the port of Boston with military force, a mistake that cost them their colonies.

> *But the incipient Americans did not fight a war and die for a few wealthy tea smugglers—the Revolution was about* Common Sense.

Times for Drinking Tea

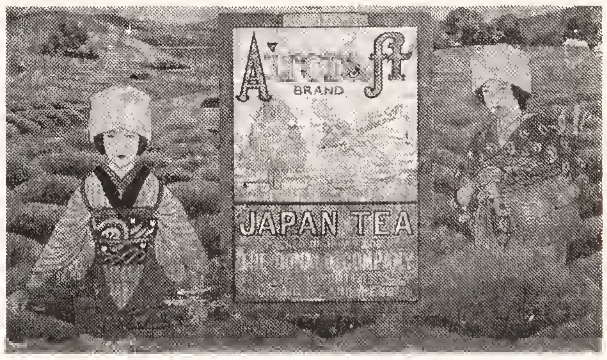
In idle moments
When bored with poetry
Thoughts confused
Beating time to songs
When the music stops
Living in seclusion
Enjoying scholarly pastimes
Conversing late at night
Studying on a sunny day
In the bridal chamber
Detaining favored guests
Playing host to scholars or pretty girls
Visiting friends returned from far away
In perfect weather
When skies are overcast
Watching boats glide past on the canal
Midst trees and bamboos
When flowers bud and birds chatter
On hot days by a lotus pond
Burning incense in the courtyard
After tipsy guests have left
When the youngsters have gone out
On visits to secluded temples
When viewing springs and scenic rocks

—Ming dynasty tea manual, quoted in Blofeld

On the Flower *Sacrific*

The ancient Masters extended the Way of Tea to all things. They recognized that in cutting flowers to place in the tea room they were involved in ritual sacrifice. The Flower Master knew that with his scissors and his knife, with his wires, his twisting and bending, with his salt and alum and vinegar, that he was the chief torturer, and the executioner.

He knew that for a butcher, a pious sense of guilt, or perhaps Debt, was seemly. Thus he washed the leaves with a fine rabbit hair brush. Thus obeisance was made to the flower arrangement even before greeting the host. Thus he tried not to waste. Thus faded flowers were taken to a river to be cast away, or else they were buried. And thus sometimes he would erect a monument.



TEABOX, OCCUPIED JAPAN

Emperor Huensung, of the T'ang dynasty, hung tiny golden bells on the branches in his garden to keep off the birds. He it was who went off in the springtime with his court musicians to gladden the flowers with soft music.

—Okakura Kakuzo

The Ally

So what plant are you going to play to with that harmonica?

Wormwood.

Signatures

Heavenly Pillar
One Leaf
Cloud-Mist
Left-by-the-Birds
Backbone Cliff
Fairy Cliff
Jade Spiral Springtime
Monkey Tea

—Chinese teas rare to the point of legend

The Ally

The head server pours the tea offering into a tiny cup and places it on a tray. Hold the tray at about eye level and approach the altar along the center aisle. Bow to the Buddha, step to the right, and place the offering on the altar. Bow again, and then make a full prostration, followed by a gassho. Exit along the right aisle. Join the other servers and bring the tea in together, holding the teapots at eye level with both hands. The servers should all bow together after entering the zendo, and then serve the tea.

There was one particularly fine and subtle tea cultivated in the Zen temples. The masters sought to pass it through time by compressing it into a "koan," something like a smooth jade disk to be placed in the mouth and kept on the tongue day and night. When the tea is at last ready, it is said, the disk dissolves, and the True Identity of the tea is revealed—

Cloud Tea, or maybe Iron Ox Tea,
or Fragrant Grasses Tea, or Oak Tree Tea

each with a particular flavor that suffuses the body and tingles in the blood.

Chao-chou's tea. Lin-chi's tea.

Cat-lying-in-front-of-the-stove tea.
Winter storms.

Seventy years of Zen—
I got nowhere at all
I shed my black robe
Became a shaggy crank.
I have no business with
The sacred or profane,
Selling tea is all I do—
It holds starvation off.

—Baisaō, tr. by Norman Waddell, in The Roaring Stream, ed. by Nelson Foster and Jack Shoemaker

THEOBROMA CACAO

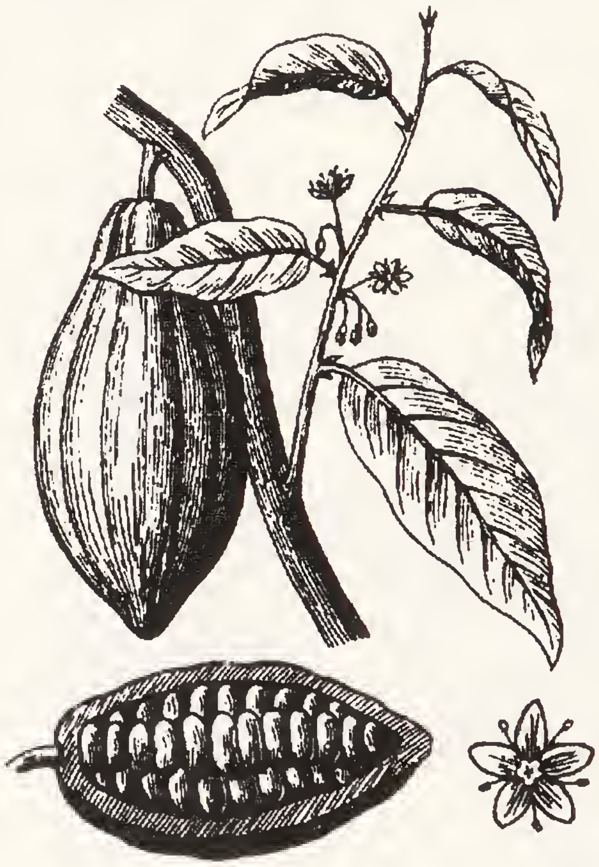
Common names Chocolate, cocoa. The "Food of the Gods."

Related species Nothing else quite like it.

Taxonomy The Sterculiaceae is a family of soft-wooded small trees and shrubs, predominately tropical, with alternate leaves and usually distinguished by stellate pubescence (star-shaped hairs) covering the leaves and inflorescence. The family contains the genus *Theobroma*, of which the cacao tree is one of twenty-two (or fifty, depending on the taxonomist) species. Sterculiaceae also contains the economically important genus *Cola*—the kola tree, *Cola nitida,* is among its 125 African species—and the large genus *Sterculia,* named for the Roman god of privies. (For those brought up in the city, a "privy" refers to an outbuilding "fifty feet too far away in the winter and fifty feet too close in the summer." The name is derived from the smell of the flowers of certain of the species.)

In California, the Sterculiaceae is represented by the beautiful *Fremontia,* or flannel bush, with its spectacular deep golden flowers.

Two species of *Theobroma* are cultivated, *Theobroma cacao,* the source of chocolate, and *Theobroma bicolor,* from which a beverage called *pinolillo* is prepared in Nicaragua from the pulp of the seed pod (not the beans). The drink is called *pataxte,* "big pumpkin seed," in Nahuatl, a name also used for *Theobroma bicolor* generally.



STRASSLE,
NATURGESCHICHTE,
1885

Theobroma cacao occurs as two cultivars: variety *criollo,* which was the source of the cacao drunk in Mesoamerica, and *forastero,* a hardier but less tasty variety found in the northern and western Amazon basin. *Theobroma cacao* only flowers within twenty degrees of latitude north or south of the Equator.

Until recently, no one was sure that there were any truly wild populations of *Theobroma cacao,* but Allen Young has established that truly wild populations exist in the upper Amazon, and Jose Cuatrecasas believes that wild populations exist in Guatemala and in Chiapas among the Lacandon. These populations may have once been connected and continuous, before becoming separated in the Quaternary. Others believe that *Theobroma cacao* is of fairly recent origin, perhaps created by early people in the Amazon ten to fifteen thousand years ago by crossing two wild species such as *T. pentagona* and *T. leiocarpa.*

In the Amazon, cacao was used mostly, if not entirely, for the pulp. But it is unclear whether the *criollo* cacao evolved in the Amazon basin or in Central America. Anthropologist and food historian Sophie Coe, in her fine *True History of Chocolate,* believes the *criollo* variety was indigenous to the low plains of southern Mexico and Guatemala, the center of the cacao bean culture. There is no evidence that cacao was cultivated in South America before the Conquest. Allen Young, in *The Chocolate Tree,* nonetheless believes that both varieties evolved in South America. While the seeds of *Theobroma cacao* remain viable for only a few weeks, the tree could have been spread to Mesoamerica by sea traders around 1500 BCE as ripe pods, or even as seedlings.

Part Used The processed seeds, though as below, the sweet pulp is a nutritious (and fermentable) foodstuff.

The Plant *Theobroma cacao* evolved as an understory tree. The large coconut-sized seed pods grow directly out of the trunk and the main branches from merisematic cushions, a process called *cauliflory.* Cacao is a difficult tree to grow, being subject to diseases and generally finicky in its demands for constant temperature and humidity. The flowers are fertilized by tiny midges, and well-manicured plantations have notoriously low yields. Some of Allen Young's research was aimed at determining the importance of the natural setting of the tree, especially the decomposing ground litter of the upper canopy, as the breeding ground for the midges. Thus the ancient Mesoamerican farmers likely enjoyed much more fruitful yields from their trees than do many modern large-scale plantations.

The large seed pods contain a sweet white pulp, and this was probably the first human interest in the tree. If so, then sweetness was linked to cacao in its earliest use, a subject we will return to with the subsequent post-Conquest practice of sweetening cocoa with sugar.

The use of the seeds of the pods developed about three thousand years ago among the Olmec on the Gulf Coast of Mexico. In their raw form, the seeds are extremely bitter. The complicated techniques of curing the seeds into an ingestible form have changed very little, down to the present time, the single modern innovation being Van Houten's defatting process for making cocoa. (We'll use *cacao* to refer to the tree or the seeds of the pods, *cocoa* to refer to the dry powder used to make drinking chocolate, and *chocolate* to refer to any chocolate drink, or to the familiar comestible product in cakes or bars.)

Several operations are required to make chocolate from the beans, and it is a tribute to the skill of the Olmec agriculturists that they perfected such a multistage operation. First the pods have to be carefully cut from the trees in a way that does not damage the cushion. Then the pods are opened and the beans and pulp scraped out. The first stage in processing the pulp is fermentation. This takes several days (one to three days for *criollo* and three to five days for *forastero,* though pre-Columbian chocolate was exclusively *criollo*). During fermentation the pulp heats up to between 113 and 122 degrees Fahrenheit (45–50°C). Chemical and enzymatic reactions take place that liquefy the pulp and cause the seeds to germinate. The germination of the seeds is essential to create a cocoa flavor. The high temperature is maintained for several days after the seeds germinate, eventually killing them and reducing their astringency. A second fermentation, an aerobic fermentation, takes place after the first anaerobic fermentation completes. The piles of seed pulp must be turned several times for the fermentation to proceed correctly.

After both fermentations are complete the beans are easily removed from the liquefied pulp and are then dried on mats or in baskets in the sun. Drying usually takes several weeks, and enzymatic activity continues, further developing the flavor and aroma characteristic of cocoa. After drying, the seeds are roasted, catalyzing further chemical reactions and turning the "nibs," the beans, to a rich brown color. After roasting, the nibs are winnowed: the loosened husks are separated from the kernels.

The resulting product we will henceforth call cocoa beans: the source of chocolate, the stuff of myth, and a coveted item of ancient commerce.

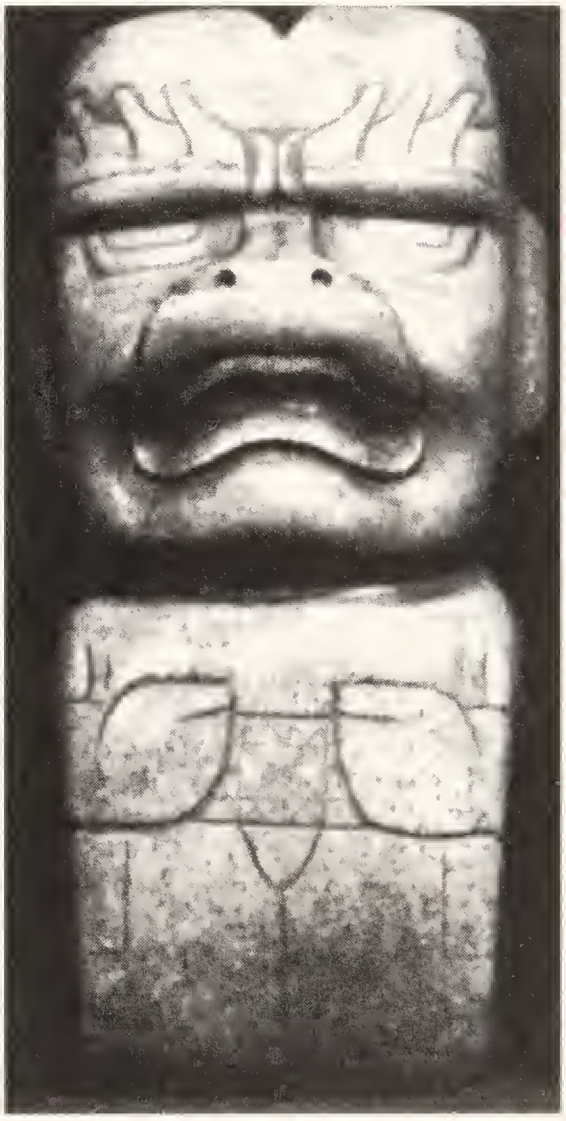
All alone I sing
to the one who is my Lord:
in this place where the gods command,
the flower-chocolate drink is foaming—
the flower-intoxication.

I yearn, oh yes!
for my heart has tasted it:
it intoxicated my heart—
songs, dreams, yearnings.
My heart
has tasted it.

—Tlaltecatzin, p. 240

How Taken

As cocoa, in a golden chalice, or in pottery goblets; as chocolate, in bars or chunks, in coatings for confections, in cakes, brownies, fudge, frosting, and ice cream. As cocoa butter on the skin.



CEREMONIAL OLMEC AXE

Chocolate goes well with coffee, and with several distilled beverages, such as cognac, or Tennessee whiskey.

To my knowledge it is not yet smoked or injected.

Effects A stimulating tonic for the body and a soothing balm for the soul.

Chemistry, Pharmacology Chocolate contains xanthine alkaloids, as do coffee and tea. Chocolate contains caffeine, but in small amounts. A cup of cocoa usually contains about four or five milligrams of caffeine, about one-twentieth that of a cup of coffee. But chocolate contains somewhat larger amounts of theobromine, 1,7-dimethylxanthine. While hot chocolate contains only one to eight milligrams of caffeine, it contains forty to eighty milligrams of theobromine. A chocolate bar, at least the good ones, may contain twice to four or five times these quantities of alkaloids.

The exposed nitrogen atom on the theobromine molecule (covered by a methyl group in caffeine) creates differences in both the level and the nature of the physiological activities of the two sister molecules. Theobromine has only about one-fourth the power of caffeine as a "stimulant" (central nervous system stimulation), but is more powerful than caffeine as a smooth muscle relaxant and vasodilator. Theobromine is much more potent than caffeine in relaxing bronchial muscles, and thus in relieving spasms, such as asthma. Theobromine is more active than caffeine as a cardiac stimulant, and chocolate should not be given to dogs for this reason, dogs evidently being especially sensitive to this alkaloid. Like caffeine, theobromine is a diuretic.

Theobromine is far less potent than caffeine in increasing serum corticosterone levels, perhaps related to its lower solubility. Theobromine's binding power on adenosine receptors is less than one-third that of caffeine.

In addition to xanthine alkaloids, chocolate also contains phenethylamine, the backbone molecule common to catecholamine neurotransmitters such as norepinephrine, dopamine, and epinephrine (adrenaline). Phenethylamine is also the backbone of such drugs as mescaline, amphetamine, ephedrine, and several hundred other potent compounds created or investigated by Dr. Alexander Shulgin (see PIHKAL), including DOM ("STP"), TMA, MDA, MMDA, MDMA, and 2CB. It has long been suggested that phenethylamine might be responsible for the soothing mood-effects of chocolate. Since chocolate was a favorite of those suffering from love-sickness, it seemed possible that both withdrawal pangs and the phenethylamine in chocolate might be involved with dopamine levels in the brain.

Dr. Shulgin investigated this possibility by ingesting large amounts of pure phenethylamine. He found that the body is so effective in breaking down phenethylamine that he felt no effects even from consuming more than a gram and a half of pure phenethylamine, a good spoonful.

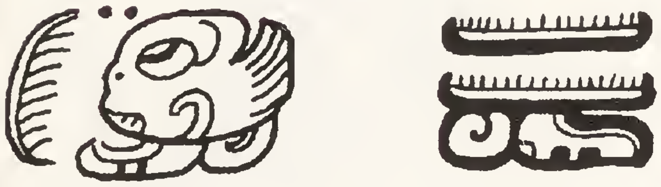
But science never stands still. Recently, anandamide has been discovered in chocolate. Anandamide is the endogenous ligand, the neurotransmitter in the brain that binds to the THC receptor, which is the receptor to which the tetrahydrocannabinol in marijuana binds. In addition, chocolate contains two related compounds, in greater quantities, that inhibit the natural degradation of anandamide in the body. While this research is quite new, it is possible that chocolate contributes to a buildup of the body's own anandamide as well as contributing a little extra itself.

The fats in chocolate also trigger dopamine-based pleasure circuits. Nalaxone interrupts the sweet and fat cravings of chocoholics.

Other recent research, some of it by the Belgians, has found that some of the same phenolic antioxidants found in red wine that are thought responsible for wine's demonstrated effectiveness in combating heart disease are also found in chocolate in significant quantities—a cup of hot chocolate being about equal to three-fourths of a glass of red wine, and some dark chocolates containing twice the flavonoids as a glass of wine. A study at the University of California at Davis found that epicatechin levels in the blood rose exponentially for six hours after subjects consumed semisweet chocolate. Antioxidant acitvity also rose, notably reducing the oxidation of low density lipoproteins (the "bad" cholesterol) (Tarkin, 2000).

History

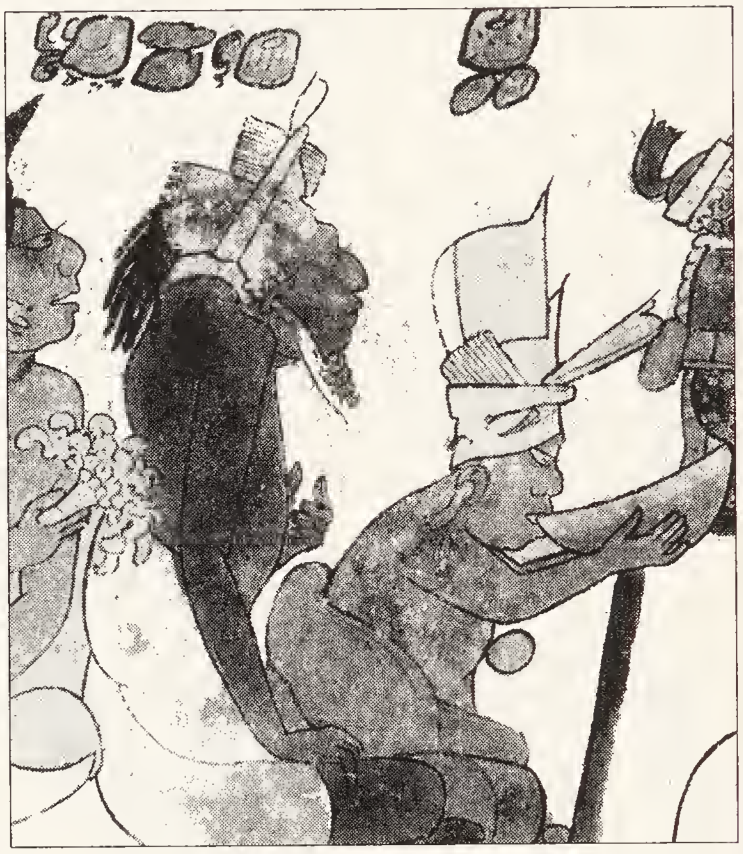
Sophie Coe, who scrutinized the available evidence as thoroughly as anyone, believed that *Theobroma cacao* was first cultivated by the Olmecs, sometime between 1500 and 1000 BCE. The Olmecs lived along the Mexican Gulf Coast, in southern Veracruz and Tabasco. We know little about them apart from the colossal heads that they carved in stone. On the basis of historical linguistics it is thought they spoke a proto-Mixe-Zoquean. Languages of this family are still spoken by peasant farmers of the area. It is from the Olmecs that we received the word *cacao*.


CLASSIC AND POSTCLASSIC MAYAN CACAO GLYPHS

It was also the Olmecs who discovered the secret of treating maize corn with lime, a process called *nixitamalization* that releases the amino acids in the kernels. Europeans ignored the Aztec doctors for several centuries, and poor people in southern Europe who had come to depend upon maize as a staple food often suffered from pellagra, a painful and debilitating disease wholly curable with B vitamins. Coe believes that the nixitamalization of corn provided the energy base that supported the rise and growth of Mesoamerican civilization.

Olmec culture and civilization faded from history around 400 BCE, for reasons still uncertain. Sometime around 100 CE the Maya began arriving in the old Olmec territory, coming north from present-day Guatemala. On the Pacific coastal plain of Chiapas, they met descendants of the Olmecs at Izapa. *Cacao* entered Mayan as a loan word, and cacao cultivation was adopted into Mayan culture.

The Classic Maya culture flourished from around 250 to 900 CE. We know that cacao was drunk at least by the aristocracy and that it became an important part of their mythology. Tall cylindrical jars containing different cacao beverages were buried with Mayan nobility. On a Late Classic pottery vase there is a painting of a woman pouring the contents of one jar into another jar at her feet: this is the first depiction of the preparation of the foaming chocolate—a technique witnessed by the Spaniards in Tenochtitlan eight hundred years later. In many Maya inscriptions the glyph for *cacao* (pronounced "ka-ka'w," as it still is), is preceded by various modifiers, including "chili" cacao, "fruity" cacao, and a number that have resisted translation. It seems clear that there were a number of different preparations of cacao, with a variety of other plants being used as admixtures, each with distinctive effects.



KEEPERS OF HOLY BOOKS

The Maya were traders, and ceramics and obsidian unburied in the Classic Maya city of Balberta in Guatemala show that they traded at least as far north as Teotihuacan. For these exotic manufactured goods the Maya undoubtedly traded cacao beans, as their descendants and relatives continued to do at least until their trading networks were taken over by the Spanish. Classic Maya civilization collapsed around 850 CE. The great cities were abandoned, to be reclaimed, finally, by the forest. The cause of the collapse appears to be ecological: deforestation and overpopulation. The people all moved away: north to the Yucatan or southwest to the Guatemalan highlands—a strange image to visualize, but evidently true.

Leaving behind the palaces and the rich temples,
the marketplaces and the houses,
the shops selling musical instruments,
the libraries of painted books,
the observatories
    where they charted Venus and predicted eclipses,
the corridors and murals,
the cacao plantations.

The Collapse was not universal. Several younger cities to the east were still vibrant with food and resources. The Chontal Maya who occupied the wet lowlands of eastern Tabasco grew rich through the cacao trade. Large dugout canoes carried cargoes north and south, clear around the Yucatan peninsula down to Honduras. They established the city of Cacaxtla in Tlaxcala, commanding the trade routes into the Valley of Mexico. Mayan gods were painted in murals, especially Ek Chuah, the God of Merchants, with his backpack and cacao tree.

Around the year 1000 CE Cacaxtla was conquered by the Toltecs.

The Toltecs expanded their realm of influence as far as and into the Yucatan. Undoubtedly they used their military strength to get good deals on chocolate, but the Maya probably remained the traders. The Maya had the trading networks, and they had the recipes for the many differing cacao preparations. As the Toltecs declined, a new people, the *Mexica,* or *Aztecs,* began to gain power in the Valley of Mexico. As the Aztecs established their Empire, the Maya were ready with cacao beans to trade with them.

Signatures

> *American chocolate is coarse—they skimp on grinding. My favorite is Belgian chocolate, the 77% kind. It's business-like and to-the-point. The Dutch can do about as well as the Belgians, when they put their minds to it. German chocolate can be good as long as they are copying the Dutch. Swiss chocolate is too precise—they confuse it with their watches. French chocolate is pretentious—all frills and package with no substance. English chocolate is clueless, they have to add fruit and nuts. Russian chocolate should come with a wick and a candelabrum.*

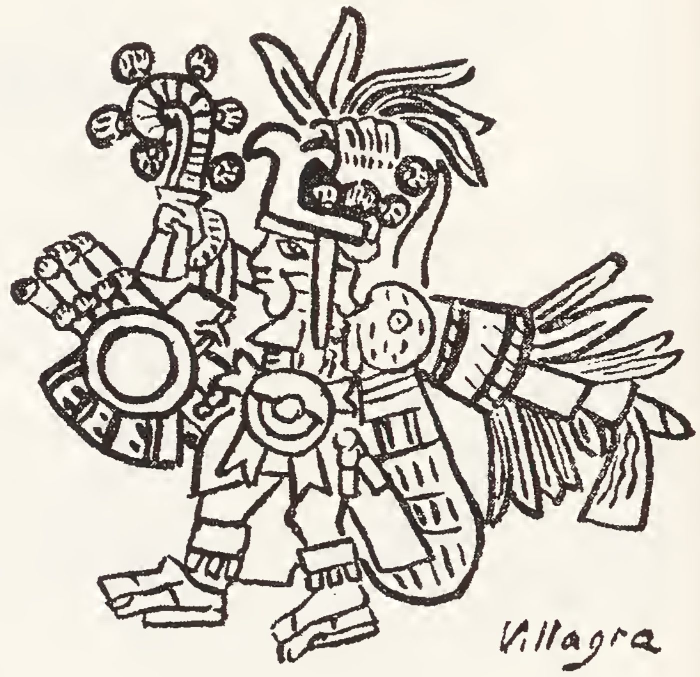
A Wee Bit on the Aztecs

The Mexica probably arrived in the Valley of Mexico from somewhere to the north sometime during the thirteenth century. According to their own mythology, of which they were proud, they had been barbarians—humble desert dwellers wearing rabbit skins. They had emerged from Chicomoztoc, the "Seven Caves," and after living among dangerous animals in the desert had settled at Aztlan, the "Place of Whiteness," a small island in the middle of a lake. Other tribes had emerged from the Seven Caves before the Aztecs, including perhaps the Toltecs and the Chichimecs. According to tradition, the Aztecs left Aztlan in the year 1111. From Aztlan, they followed the sacred medicine bundle of Huitzilopochtli, the "Hummingbird of the South," to Culhuacan, "Curved Mountain." The people of Culhuacan eventually kicked the newcomers out, and on the basis of an unfavorable omen, a broken tree, the tribe divided. One group continued south, calling themselves "Mexica," and eventually arrived in the Valley of Mexico.

The Valley, of course, was already occupied by the descendants of the Toltecs along with other immigrant groups. There were many cities, each with distinctive traditions and tribal associations, and often involved in small wars with each other. Even in decadence, the Toltec culture was sophisticated, artistic, and learned. The Mexica settled for a while at Chapultepec, but they suffered a serious military defeat at the hands of the Tecpanecs late in the thirteenth century. (Chapultepec is famous for lost causes. During the U.S.-Mexican War, a group of young military cadets defended it to their death, some reportedly plunging to their doom wrapped in the Mexican flag; their sacrifice is observed in the annual celebration of the *niños heroes.*) The tribe again divided, and many bands scattered to seek refuge in surrounding cities. Many of these bands intermarried and were assimilated by their adopted cultures. The Mexica found protection in the city of Culhuacan (a different city from the Culhuacan of Aztec myth). The Mexicas were accepted there as workers and as mercenary warriors.

The inhabitants of Culhuacan claimed to be the descendants of the Toltecs. The Mexica made some attempts to marry into that revered lineage, but an altercation occurred. One story is that the king of Culhuacan had reluctantly given his daughter to be married to a Mexica prince. Perhaps roused by the snobbish ways of his intended's family, the prince killed her on the eve of the wedding, flayed her body, and appeared at the wedding wearing her skin.

they had . . . "attitude"



A. VILLAGRA, HUITZILOPOCHTLI AND THE SERPENT OF FIRE

Culhuacan banished the whole tribe to a couple of islands in the middle of Lake Texcoco, the Lake of the Moon, probably hoping they would starve and disappear.

Such did not occur. Huitzilopochtli spoke and announced that the island was the promised land of their prophecies. The island and its lake setting recalled Aztlan, and there, in 1325, the Mexica established their base, Tenochtitlan. A dissident faction settled on a neighboring island, and named their city Tlatelolco.

For several generations the Mexica lived quietly, building up their population by welcoming refugees from other parts of the Valley. The Mexica concentrated in developing crafts and trading more than agriculture, and it was the various foreign peoples the Mexica welcomed to their island that provided many of these skills. The jewelers and lapidary artists came from Xochimilco. An important guild, the manuscript painters, were descendants of a Mixtecan tribe, the Tlailotlaca. But most important for our story were the *pochteca,* the long-distance merchants. Sahagún dates their arrival in Tenochtitlan at around 1400. The *pochteca* were related ethnically to peoples on the Gulf Coast: the Chontal Maya, and perhaps to the Olmecs—the same traders who had served the Toltecs and Teotihuacan at Cacaxtla. Aztec society was highly stratified, but the *pochteca* were so highly valued that they were permitted many of the exemptions and privileges usually reserved for the Aztec aristocracy. Such as drinking chocolate.

The *pochteca* were considered honorary warriors, and they probably exaggerated the dangers of their long-distance trading journeys to maintain that image. While they had the right to wear cotton like the nobles, and feathers, they usually wore maguey like the commoners. They kept to themselves and tried to maintain a low profile. They hid their wealth by distributing it among extended families. They assuaged the jealousy of the warrior elite by inviting them to banquets and giving presents, but their privileged position always rested on royal favor and support from the highest strata of Aztec administration. The importance of the *pochteca* went far beyond simply supplying the palace with chocolate. Tenochtitlan was a city of craftsmen, and they were dependent on imports. The whole wealth of the city was based on the flow of raw materials across the causeways: cacao, feathers, precious stones, gold, cotton—any item of exotic beauty that could add to the prestige of the city—as well as foodstuffs.

And prestige was of paramount importance. If we accept the world as the playground, sometimes battlefield, of poisons, history becomes a story of shamanic alliance and conflict, a story of magic spells and their dissolution by new spells. We can say that all governments are in the business of enchantment, to keep the sacrificial victims from rising up and overthrowing those who sacrifice and eat them. Armed force is never absent, but even when most prominent certain logistical equations ensure its vulnerability. Along with terror, hegemony depends upon myth and sorcery. Tenochtitlan thus deserves our study.

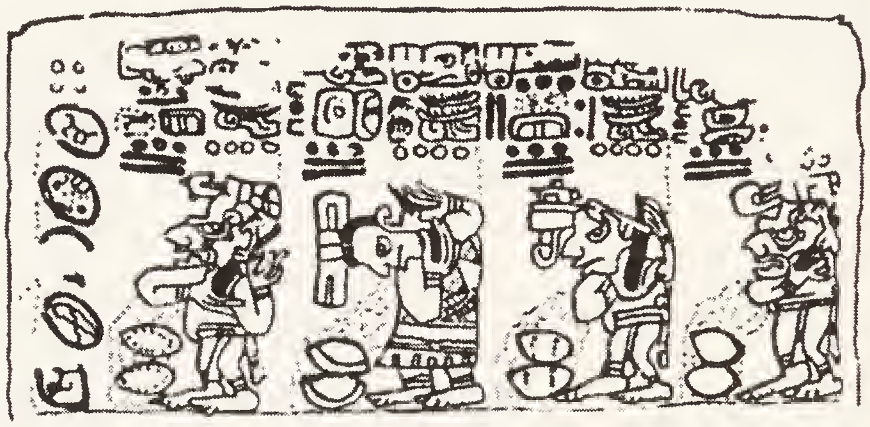
In 1430, during the reign of King Itzcóatl, the Mexica of Tenochtitlan faced a crisis. King Maxtla of Azcapotzalco, sensing the ambition of the Mexica, had doubled their tribute. The Mexica had responded by developing floating gardens to be able to raise enough food to pay off Azcapotzalco, but Maxtla was still not satisfied. The story goes that Itzcóatl, following the will of the people, was prepared to submit, to bring the statue of Huitzilopochtli to Axcapotzalco and to throw himself on the mercy of the king. A philosopher named Tlacaélel spoke and aroused the Mexica to resistance. The nobility made a deal with the commoners that if the war were unsuccessful, the nobles would become servants of the commoners, but if the war were successful, the commoners would recognize the right of the nobility to rule. The Mexica enlisted allies from other tribes and cities that had grudges against Azcapotzalco, and the war against the Tecpanecs was successful. Tlacaélel became Itzcóatl's chief advisor ("he did only what Tlacaélel advised him to do") and Tlacaélel remained the power behind the throne through the reigns of Moctezuma I, Axayácatl, Tizoc, and Ahuítzotl.

With the defeat of the Tecpanecs, Tlacaélel directed three important changes in Mexica society, and thereby created the Aztec state. He created a military aristocracy by granting titles of nobility to distinguished soldiers. This system gave commoners a means of upward mobility, measured by the number of captives a soldier had brought back to the city. Five captives seems to have been the threshold to admit a soldier to the Warrior class, with its attendant privileges. Second, Tlacaélel expropriated Tecpanec lands and divided them between the king, the nobility, the new warrior class, and the *calpullis,* the traditional kin-based guilds that functioned as the basic governing units of the various quarters and sections of the city. This gave everyone a stake in Tenochtitlan's military success, and during Tlacaélel's lifetime the Aztecs extended their empire throughout the Valley of

Mexico and beyond: west to the territory of the Tarascans, east to the Gulf Coast (except for Tlaxcala), and south to Oaxaca.

Lastly, and certainly an act of magic, Tlacaélel burned the books and scrolls that he could find in order to write a new history. In the new history Huitzilopochtli, the god of war, was made a supreme deity, elevated to the rank of the Fifth Sun, the present age. As a consequence the Aztecs became the "chosen people," the People of the Sun who had the historical and cosmic responsibility of ensuring that the Fifth Sun not come to an end—that the sun continue to rise.

Historians differ as to how much importance any individual magician has in history, and Tlacaélel's case is no exception. Many ascribe to Tlacaélel the Aztec equation of blood and sun: that the energy of the human heart and the energy of the sun were one, and that this energy could be transferred through sacrifice. It was certainly under Tlacaélel's tenure that the sacrifice of prisoners of war began in earnest. And it was Tlacaélel's idea to maintain a state of constant warfare with several distant cities—not too distant, but not so near as to be kinfolk—to procure sacrificial victims. This was the "flower war," *xochiyaoyotl,* that Tlacaélel specified must not be fought to destroy or subdue the enemy city, nor to gain land or wealth, but purely to acquire captives for sacrifice. Tlacaélel restructured the priesthood. He also founded Tenochtitlan's great botanical garden.



MAYA GODS SHEDDING BLOOD OVER CACAO

Human sacrifice had a long history in Mesoamerica, as it does in many parts of the world. The Maya sacrificed captives, often after torturing them, and war captives were tortured in many places in North America. There is some evidence of sacrifice in Teotihuacan, and even among the Toltecs, in spite of their supposed official opposition to the practice. Among the Maya, human sacrifice is associated with kingship, especially with the ascension of a new king. But nowhere else did human sacrifice attain the pervasive scale that it did in Tenochtitlan.

Maya sacrifice was always accompanied with shamanic blood-letting. A queen would pierce her tongue diagonally with a stingray spine, and then pull a length of twisted string through the hole, allowing the blood to flow down the string. A king did the same with his penis. The blood was collected on paper and burned. The Visionary Serpent emerged from the smoke, and the visions that came from his mouth were recorded and interpreted. The Aztecs practiced bloodletting, generally by piercing earlobes, but they seem not to have practiced the visionary divination from burning blood. In fact, there seems to have been some fear of the Serpent.

If we distinguish shamanism from priestcraft, shamanism being direct intercourse with spiritual energies through some form of trance, then shamanism in Aztec sacrifice is most notable by its absence. Aztec sacrifice was ideology. We read of four great lines leading from the pyramid of Huitzilopochtli, each line three miles long; of teams of priests working round the clock, in shifts, cutting out the hearts of the victims. It is this mechanical, factory-like quality that evokes images of the Camps, of the Holocaust.

We search for magical correspondences between these two regimes, and, at best, come up with only a few pointers for further study: a tribal/racial destiny to save the world, a pervasive insecurity, a mythologized history coupled to an apocalyptic millenarianism, and perhaps coercive and corporeal child-rearing practices. Both cultures were marked by a pervasive militarism, and it is worth noting that among the Maya sacrifice only became common in the classic period, along with militarism and warfare. Unlike the Nazis, however, Aztec ideology never developed the myth of a Dark Conspiracy, nor were they concerned with ideas of racial purity (Though they certainly looked upon many of their neighboring tribes, such as the Huaxtecs, as barbarians.) Nazism, despite its elaborate (and mythic) ceremonials, remained secular. For the Aztecs the battle of dualism was in the hands of the gods.

Not that Aztec sacrifice did not have wholly secular, political considerations. Sacrifice was an instrument of state terror. The Aztecs were always worried about uprisings—revolts in other cities and disturbances within Tenochtitlan were not uncommon. Perhaps the nearly everyday presence of state sacrifices, the constant presence of the victims, the dances, the ceremonies, and then the feasts following the distribution of the bodies, served to evoke an image of collective unity.

Chiefs and officials of neighboring cities, friendly and hostile, were invited to watch the sacrifices. After the heart had been removed, the body was hurled from the top of the pyramid, rolling and bouncing to the bottom where it was reclaimed by its owner, to be taken home to be flayed, butchered, and the meat distributed. Some anthropologists (S.F. Cook and Michael Harner) have expended meticulous arithmetic to argue that Aztec mass sacrifice had an ecological basis, limiting population (children, as well as slaves, were purchased for sacrifice), and providing needed protein to a civilization without any large domesticated mammals. (Other anthropologists have dismissed this theory, calculating with yet more arithmetic that the "added protein" would not have been significant.)

Sacrificial victims were often given weeks of special training and preparation, so that they could act their part appropriately: women were often expected to dance, men to fight, some to be beautifully dressed as incarnations of a god and to bless people. This process of depersonalization could last for months, the captives being alternately praised and degraded, paraded and then again locked in a cage. However honored the role of the victim, we have no record that anyone ever volunteered for it.

A sacrificial victim who began to falter during the ceremonies was sometimes given a drink of *itxpacalatl,* "water from the washing of obsidian blades," in some chocolate. (Other times they were just dragged to the stone by the hair).

It is quite possible, even probable, that the drink contained an herbal admixture, and that "blade washings" refers more to its ceremonial function than its contents. Juan de Torquemada said that the drink left the victim "blazing with spirit and courage." It has been suggested that the admixture was some species of *Psilocybe.* Others have suggested that *itxpacalatl* contained *Tagetes lucida,* which is mentioned in other contexts as being used to calm fidgety sacrificial victims. Diego de Durán describes the effect of the *itxpacalatl* as causing the victim to become almost unconscious and to forget what he had been told (that is, that he was going to be sacrificed). My own guess is that *itxpacalatl* contained *Datura,* which has a long history of being used to stupefy intended victims. Mohammed Mrabet tells such a story in *M'Hashish,* translated by Paul Bowles.

Perhaps there are two layers of magic in operation here, seamlessly interwoven: the mechanical mass sacrifice of solar imperialism and an older earth-based ritual of dancing or blood-letting, albeit transfigured by the state religion. Not all of the sacrifices were performed on the great pyramid: there were many individual sacrifices performed in the local *calpullis,* or at least connected to local deities and ceremonies. The Aztec genius was to integrate the many differing gods and customs of its cosmopolitan population, what may have been dozens of distinct annual rituals, into a single ceremonial calendar.

What does all of this have to do with chocolate?

Yollotl-eztli, a Nahuatl *difrasismo* (conjoined word), literally "heart, blood," was a poetic term for chocolate. The cacao pod was a metaphor for the heart torn out in sacrifice.

> *This saying [Yollotl-eztli] was said of cacao, because it was precious; nowhere did it appear in times past. The common folk, the needy, did not drink it. Hence it was said: "The heart, the blood, are to be feared." And also it was said of it that it was like Datura, it was considered to be like the mushroom, for it made one drunk; it intoxicated one. If he who drank it were a common person, it was taken as a bad omen. In past times only the ruler drank it, or a great warrior, or a general.*
>
> —*Sahagún, (6)256*

The Plant

Cacao beans were used as currency in the Aztec Empire and continued so in many part of rural Mexico for a century after the Conquest.

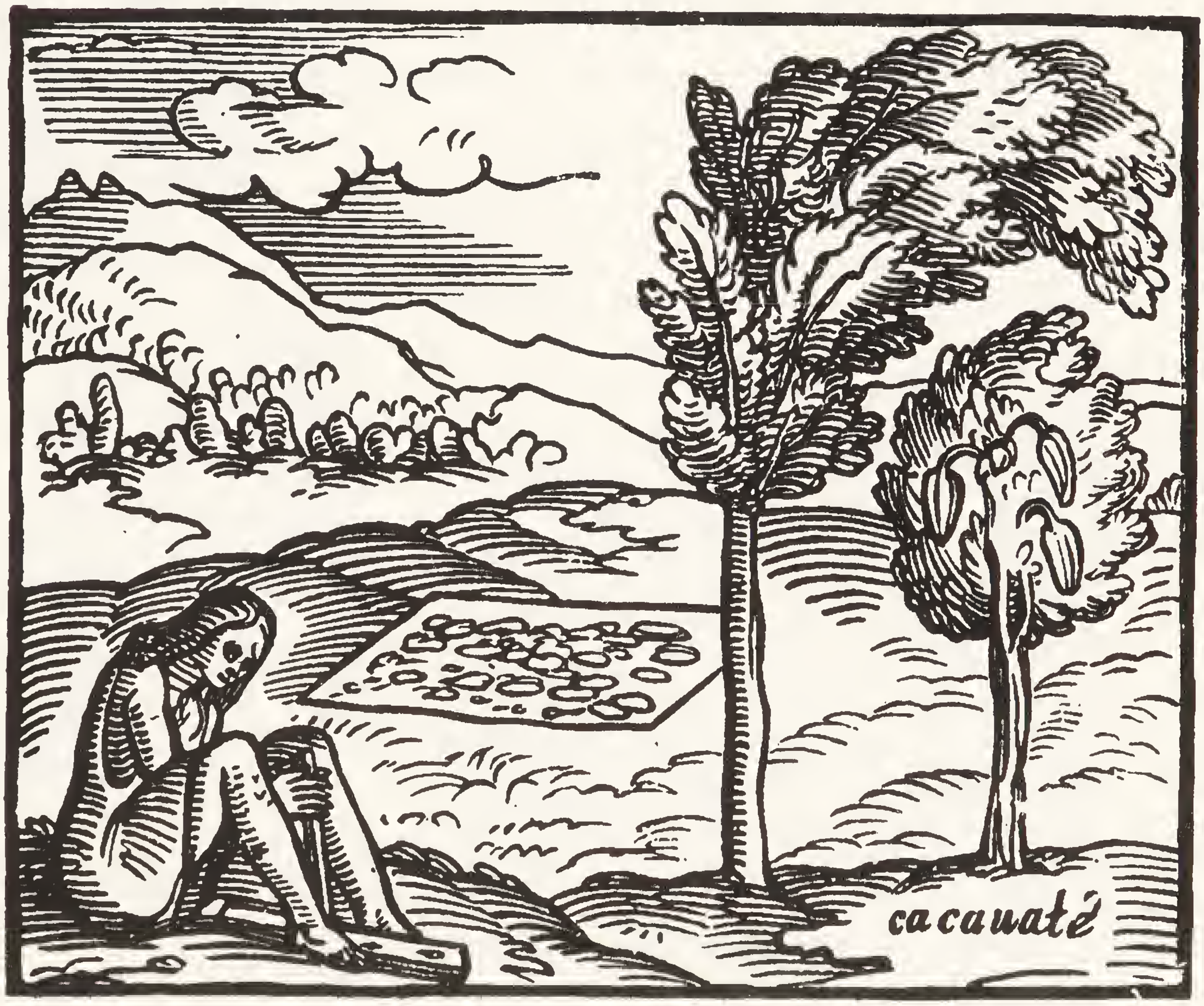
edible money . . .

Moctezuma's royal treasury vault was filled with bags of cacao seeds, not gold. Nezahualcoyotl's daily expenditure was said to be 32,000 beans. Nezahualcoyotl was the poet-king of Texcoco, a much smaller city than Tenochtitlan was to become, and the figure may be inflated by a factor of four. Still, that is a large budget. One porter could carry about 24,000 beans in a load. Bernal Diaz says more than 2000 containers of chocolate beverage were served daily to Moctezuma's palace guard.

days wage for porter:	*100 beans*
turkey cock:	*200 beans*
large hare:	*100 beans*
small rabbit:	*30 beans*
turkey egg:	*3 beans*
fish in maize husks:	*3 beans*
tamale:	*1 bean*

—based on Sophie and Michael Coe

Counterfeiters would make fake cacao beans out of amaranth dough, wax, and pieces of avocado pits. Ceramic cacao beans uncovered in Western Mexico fooled archaeologists for some years.

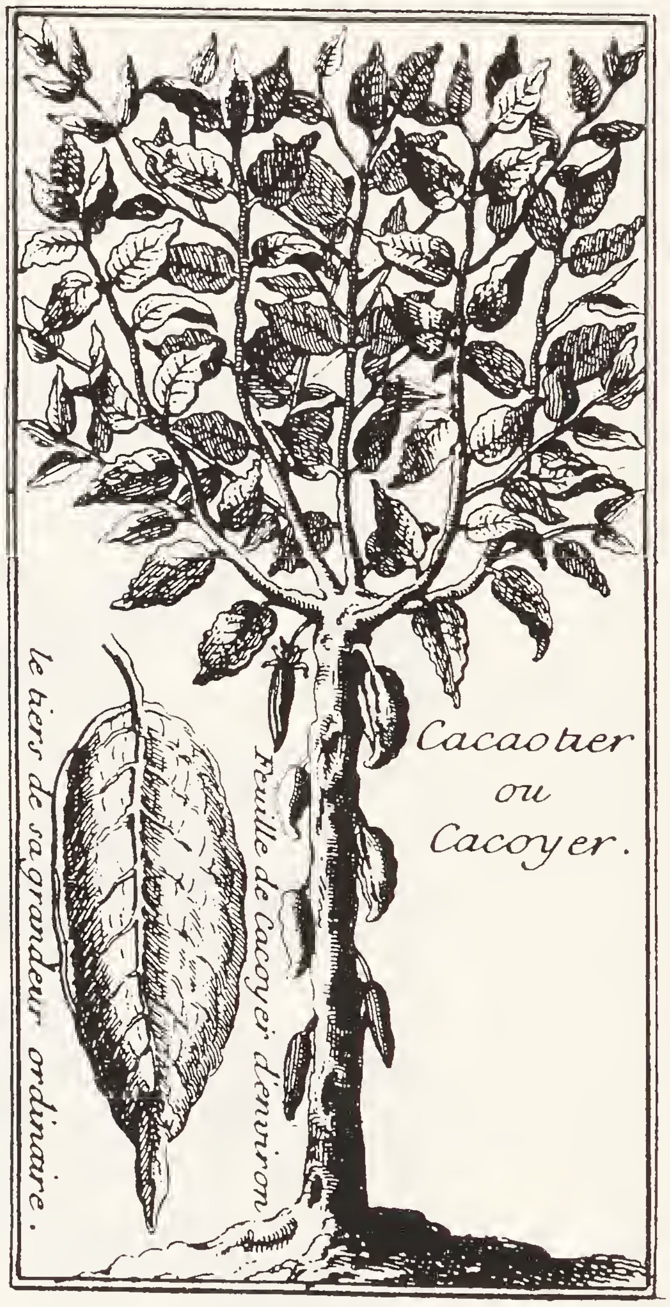


BENZONI, CACAO TREE, HISTORIA DEL MONDE NUOVA, 1565

Chocolate was reserved for the nobility, the veteran warriors, and, of course, the *pochteca,* who seemed to drink a lot of it. Commoners got chocolate when serving on *calpulli* work service in the palace, or when serving as soldiers on a campaign—cacao being a regular part of army rations. It does not appear that the priests drank *cacahuatl.*

In fact, conservative Mexicas had equivocal feelings about chocolate, as they seemed to have had for psychoactive plants generally. Moctezuma I once sent sixty shamans on an expedition to find Aztlan, the northern lake where the Mexica began their journey to greatness. The sorcerers found the lake, and asked to see the goddess Coatlicue, the "Serpent Skirt," or, if she were dead, her successor, as they brought news of her son, Huitzilopochtli. An old man led them up a hill on which the goddess resided. The climb exhausted the shamans, but the old man kept gaining strength. When the old man noticed that his visitors were lagging behind, he asked them what they had been eating. The sorcerers answered that they had been drinking chocolate. The old man told them that the chocolate was what was making them weak, that they should return to the pure, ascetic ways of their ancestors. The old crone at the top of the hill, Coatlicue, told them much the same thing: that their love of chocolate and luxury was spoiling their spirit.

Aztec civilization, with its stress on moderation and sobriety, its compulsory education, and the conscious use of myth to control the masses, has eerie parallels to Plato's utopia. Plato, of course, banned the poets, but surely, in Tenochtitlan, Tlacaélel was the type for the Philosopher-King, even if he ruled from behind the throne. In Nietzsche's terminology, they were an Apollonian culture.


Cacaotier
ou
Cacoyer.
Feuille de Cacoyer d'environ
le tiers de sa grandeur ordinaire.

JEAN-BAPTISTE LABAT, 18TH C.

How Taken

The Aztecs seem to have drunk chocolate cool. Otherwise, they prepared it as the Maya had before them. The cacao seeds, *cacahuatl,* were ground on a metate warmed by a small fire and made into a paste with water. More water was added, and the drink was foamed by pouring it back and forth between two jars. If other ingredients were to be added, the foam was carefully removed first, the admixtures stirred in, and then the foam replaced. Common additives were *nixtamalli,* masa harina, sapote (*Pouteria sapota*), and the seeds of the ceiba tree, *pochotl.* Such chocolate was said to be able to nourish a man for a day. Chocolate was spiced with chilies (*Capsicum spp.*), allspice (*Pimienta dioica*), and vanilla (*Vanilla planifolia*). At least some drinks were sweetened with honey.

The Plant

Hernandez lists four kinds of cacao seeds, of different sizes. The largest seeds were called *cuauhcacahuatl,* “wood cacao,” followed by *mecacahuatl,* “maguey cacao,” and *xochicacahuatl,* “flower cacao,” said to have a reddish seed. The smallest seeds were called *tlalcacahuatl,* “earth cacao.”

Signatures

green cacao,
honeyed chocolate,
flowered chocolate,
chocolate with green vanilla,
bright red chocolate,
huitztecolli-flower chocolate,
flower-colored chocolate,
black chocolate,
white chocolate.

—Sahagún: some chocolate drinks served to Moctezuma.

History

Chocolate was served at the end of the meal, with tobacco. According to Sophie Coe, Moctezuma’s chocolate was never mixed with maize—such chocolate being considered common. We don’t have recipes for all of the chocolates above, but the red chocolate probably contained achiote, *Bixa orellana.*

Francisco Hernandez mentions an aphrodisiacal chocolate that contained, among other ingredients, *Cymbopetalum penduliflorum,* in the Annonaceae. This large tree grows from the lowlands near Veracruz (where I’ve seen it), supposedly all the way to Oaxaca and Chiapas. It was a highly valued chocolate additive. Sahagún reports that taking it in excess leads to drunkenness, usually a reliable pointer to a plant worthy of study.

◆

Cymbopetalum penduliflorum in Nahuatl is *teonacaztli* (divine ear), or *xochinacaztli* (flowery ear). The aphrodisiacal drink also contained vanilla (*Tlilxochitl, “black flower”), and Piper sanctum,* (*Mecaxochitl,* “string flower”). The large leaves of the *Piper* plant contain safrole. They are very aromatic and today are used to wrap fish for cooking. I found the flavor imparted to the fish reminiscent of *Piper betle,* a much smaller leaf used to wrap betel nuts in southeast Asia and the Pacific.

Other admixture plants included the flowers of *olloxochitl* (heart flower), *Magnolia mexicana,* and *eloxochitl, Magnolia dealbata.* Sahagún cautions that too many petals of *eloxochitl* are intoxicating, deranging the mind. *Magnolia mexicana* contains cardiac stimulants. *Izquixochitl,* the popcorn flower (*Bourreria spp.)* in the Boraginaceae is another admixture plant.

One last important admixture plant is *Quararibea funebris.* The flowers of *Q. funebris* are added to chocolate today in Oaxaca, so it is not an unreasonable assumption that they were used by the Aztecs. They are extremely mucilaginous and would be an effective additive for creating the foam that the Aztecs so highly prized.

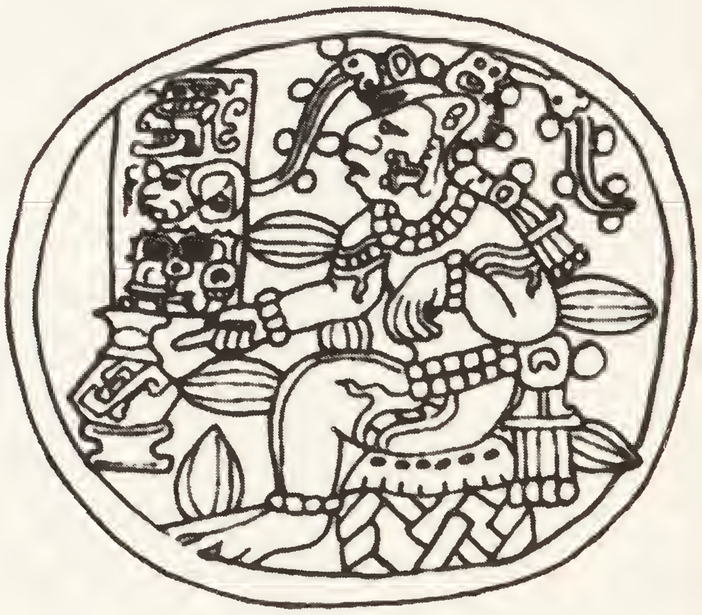
Gordon Wasson, in *The Wondrous Mushroom,* builds a case that *Quararibea funebris* is a "superior entheogen," and identifies it with the Nahuatl words *poyomatli, cacahuaxochitl,* and, at one place, *xochicacahuatl.* He further contends that *Quararibea funebris* flowers were the great muse of the Aztec poets and incited them to use *xochitl,* flower, as a metaphor for the entheogens (mainly mushrooms) in their poetry. I don't believe that any of these contentions is well supported.

In the first place, it is not clear that *poyomatli* refers to an "entheogenic" plant, let alone a "superior entheogen." José Luis Díaz and others such as Richard Heffern agree that the *poyomatli* in Sahagún is *Theobroma cacao,* or a part of the plant. Heffern identifies *poyomatli* with *cacahuaxochitl,* cacao flowers. Timothy Knab believes that *poyomatli* may be a nonspecific term. Certainly it is nonspecific in Nahuatl poetry, where Leon-Portilla usually translates it as "intoxicating," but to which we might add "blinding" or "confusing."

On the other hand, neither the drawing of *cacahuaxochitl* nor the drawing of *poyomaxochitl* in the *Florentine Codex* depict the distinctive cauliflory of *Theobroma cacao,* but neither are they very representative of *Quararibea.*

Wasson's contention that one of the flowers on the well-known statue of Xochipilli represents *Q. funebris* has some merit—the fused staminal tube characteristic of the Bombacaceae and the Malvaceae, though stylized, is well-depicted. This identification is certainly more compelling than that the petals of the butterfly-flower at the base of the statue are mushrooms—that seems more an indulgent fancy.

The case for *cacahuaxochitl* (though not *xochicacahuatl*) denoting *Q. funebris* must be considered carefully. In Oaxaca today *cacahuaxochitl* refers to *Quararibea funebris* flowers that are added to a cacao beverage called *tejate.* It may be that *cacahuaxochitl* has several meanings. It is certainly reasonable that flowers added to chocolate might be called the "chocolate flow-



MAYA CACAO GOD

ers." Still, from Sahagún it seems that at least in some instances the word refers to the flowers of the chocolate tree.

In one of Nezahualcoyotl's poems we find the paired lines:

in puyuma xochitli
in cacahua xochitli

flowers that intoxicate
precious flowers

(tr. by Leon-Portilla, 1992)

Leon-Portilla's translation is not bad, but the Nahuatl is better than any English could match—the overtones of blinding fragrance in *puyuma* add to the stimulating bitterness of the cacao and to the evanescent, blood-filled flowers that are life itself. It is unlikely that these lines should be glossed as "*Quararibea funebris, Quararibea funebris,*" as Wasson's reasoning seems to suggest.

Self experiments with *Quararibea funebris* have failed to reveal significant activity, but perhaps leaves, bark, or root are required to uncover its psychoactive effects, if any. *Quararibea funebris* does contain some interesting compounds: a tiny amount of a new alkaloid named funebrine, and several lactones, one of which is a powerful flavoring agent also found in aged sake. The most celebrated feature of the flowers is their strong and permeating aroma. *Quararibea funebris* also contains large amounts of glucose, fructose, and sucrose. I think that the foaming, flavoring, and sweetening properties of *Q. funebris* are wholly adequate to merit its poetic praise, if indeed such was ever intended, without further psychoactivity.

But while there was at least one actual plant associated with *poyomatli,* the root morpheme was used to form a number of different words that may shed some light on its many meanings. In the *Florentine Codex* we find *itoca poyomatli,* "cup-like blossoms, pleasing aroma," and *poyomayo,* where the word appears in a list of tobacco additives (along with mushrooms).

In the *Cantares Mexicanos* (song 4, 3:27) we find *poyomapoctli,* "poyoma-smoke," or "intoxicating fumes." John Bierhorst translates the stanza:

> *With narcotic fumes my heart is pleasured. I soften my heart, inhaling them. My soul grows dizzy with the fragrance, inhaling good flowers in this place of enjoyment. My soul is drunk with flowers.*

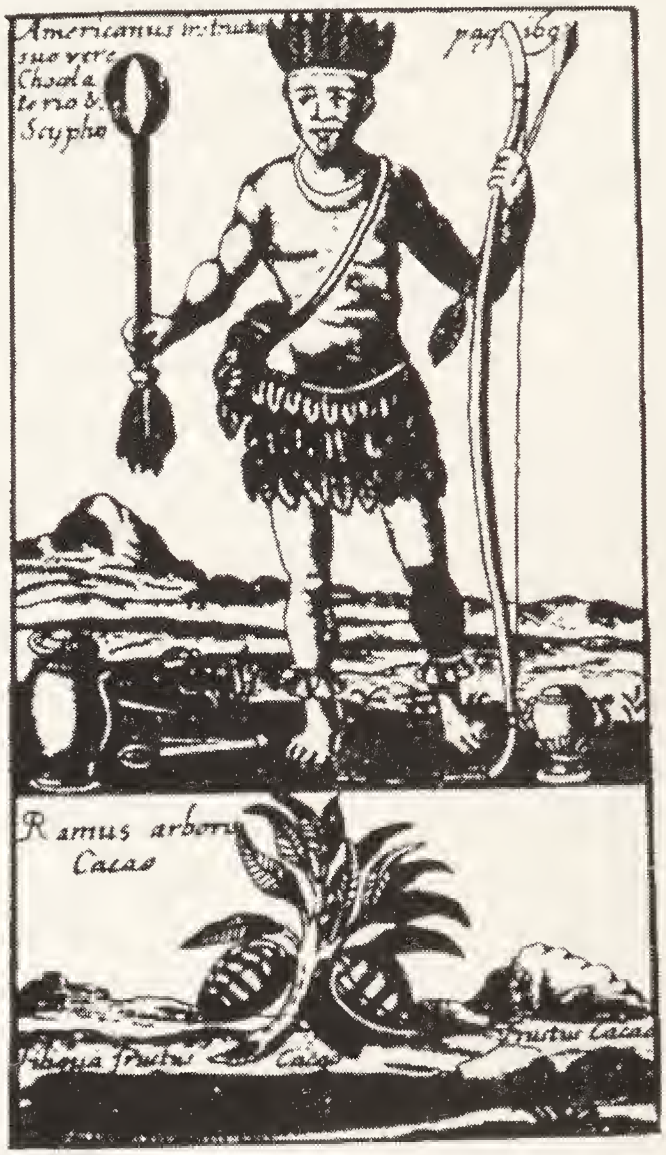
A suspiciously similar-looking word to *poyomah-* occurs at various places in Sahagún:

Signatures

ixpopoyome:	these were blind
ixpopoyomictiloque:	they slew them treacherously
quinpoyomictia:	slew them in ambush
tepoyomictia:	ambushes one
tlaixpopoyomictilti:	just so were they treacherously slain

The Plant

According to Frances Kartunnen, the root of these words is *poyo:tl,* "something evil." Etymological connection between the two stems is at this point speculative. But one does think of the Huichol *kiéri* and the solanaceae. Sahagún's informant states that *poyomatli* is the cup-like blossom of *cacahuaxochitl,* and that the blossoms are very aromatic and that they derange and provoke one. If we accept the derangement, the fragrance, the cup-like blossom, one might look more to *Brugmansia* or other solanaceous plants than to *Quararibea.* This is even more true if there is an etymological link to *poyo:tl,* with its implied visual impairment: "blinded," or "ambushed," to be "blind-sided."



BONTEKOE, DREY NEUE TRACTAGEN, 1688

But why is it that we feel that any drink the Aztec poets deemed worthy of praise must have been entheogenic? What about the West's rhapsodic invocations of coffee and tea? I think the answer is that we are an excited culture, already so immersed in stimulants that we are blind to their intrinsic magnificence.

. . . Our men will curse, obey;
Our women uncover themselves to the grinning victors for bits of chocolate.
—Robinson Jeffers, We Are Those People

PLANT WARS

Perhaps it is the plants that turn history, and we act in their behalf—sowing fields, opening plantations and imbibing the steaming extracts. The plant spirit moves through our bodies, spreading through blood and nerves, lymph and synapse, until our identities are merged and we do their bidding. We secure beachheads, plan campaigns to subdue a continent and win a culture.

> *Some plants are gregarious, others jealous. Tobacco gets along with everyone, excepting maybe Methodists. Wine and opium can't even attend the same party. Tea visits the poppy's house, but not that of the grape. Coffee seems to be imperialistic: thou shalt have no other stimulants before me, while khat doesn't mind coffee at the table at all.*

The plants have their own way of looking at history—it's not just a difference of time scale. It is difficult for humans to understand—we lack the plant's direct access to Light—we have to eat them.

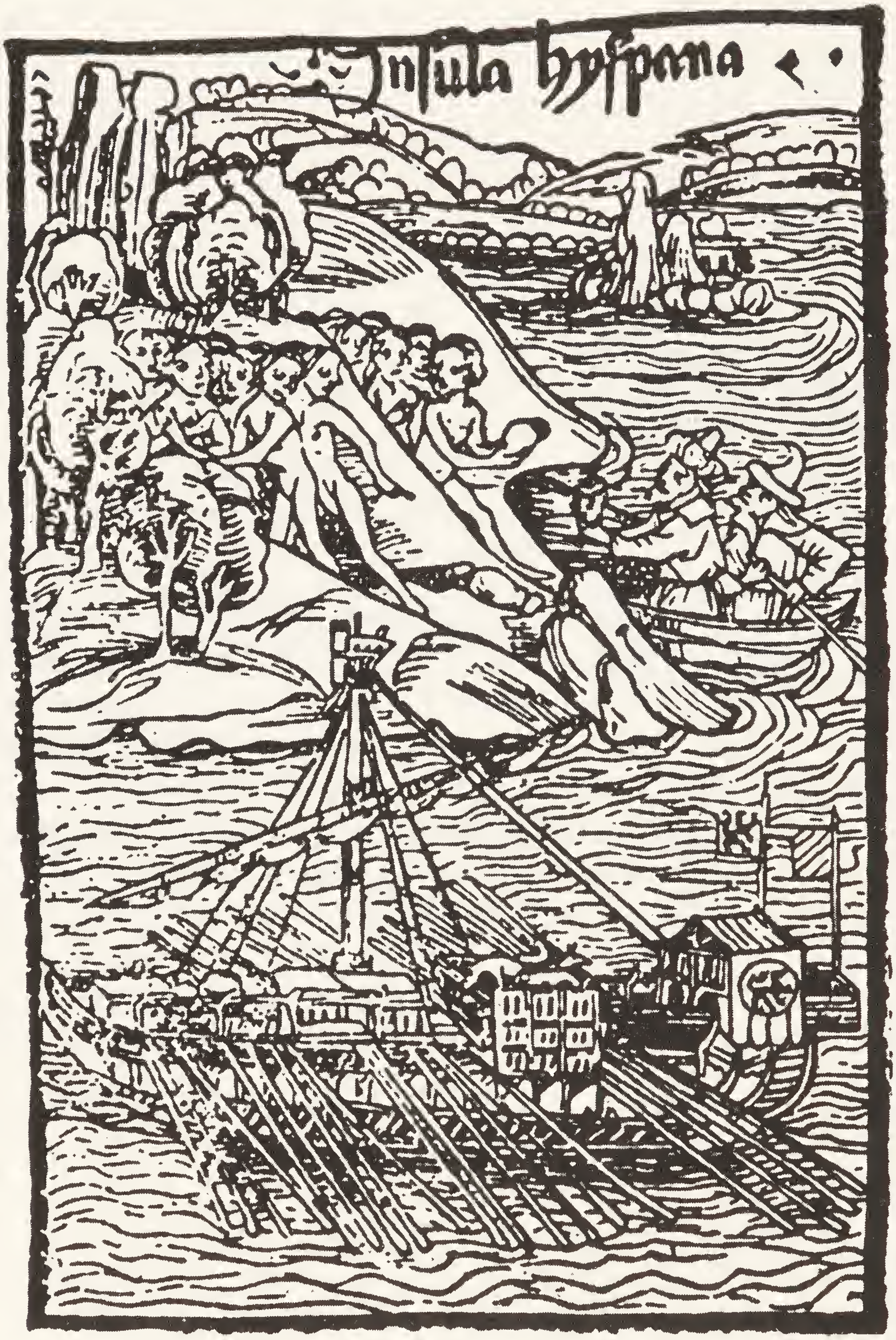
> *Alcohol has a streak of meanness, and its shrines are loud and noisy. Coffee favors conversation to music, so its houses are lively but not loud.*

In this primal communion—this, our eating of the god—we accept by surrendering. We give up our individuality, our autonomous freedom and will—and accept the grace of the Redeemer. The plant gets a chair on the top floor.

> *Cannabis mixes freely, except when it's paranoid. Hallucinogenic mushrooms and cacti need no others—they cross mountain passes and explore desert trails like free wandering monks. They greet the elementals, make friends with corn, then open the doors. No one is excluded.*

It's no wonder that Catholicism was so easily accepted in Mexico. Sacrificing the god, and then eating him, was, to Mesoamericans, not an unfamiliar concept.

> *And maize fed Spain, while the deer moved into the mountains.*


Inſula hyſpana

AMERICANS FLEEING FROM COLUMBUS, 1493

THEOBROMA CACAO, II

History

When Hernando Cortés and his adventurers entered Tenochtitlan, its population was more than 200,000—more populous than any city in Europe (as is still the case with Mexico City)—and with more than twice that number in the surrounding area. Many of the Spaniards noted the beauty and cleanliness of the city. Some thought they must be dreaming.

the long causeways spanning the lake,
thousands, tens of thousands of canoes,
canals and water works, drinking water and sewers,
the whitewashed houses with rooftop gardens,
the houses of the nobles with courtyards and pools,
the great markets filled with vendors and people,
sandal makers, weavers, feathered mantles, goldsmiths,
foodstuffs, maize, beans, sage, rabbits, insects, fish,
the palaces, two ball courts, the twenty-five pyramids,
the seven skull racks.

All the houses and buildings plastered and painted:
greens and reds, turquoise and yellow.

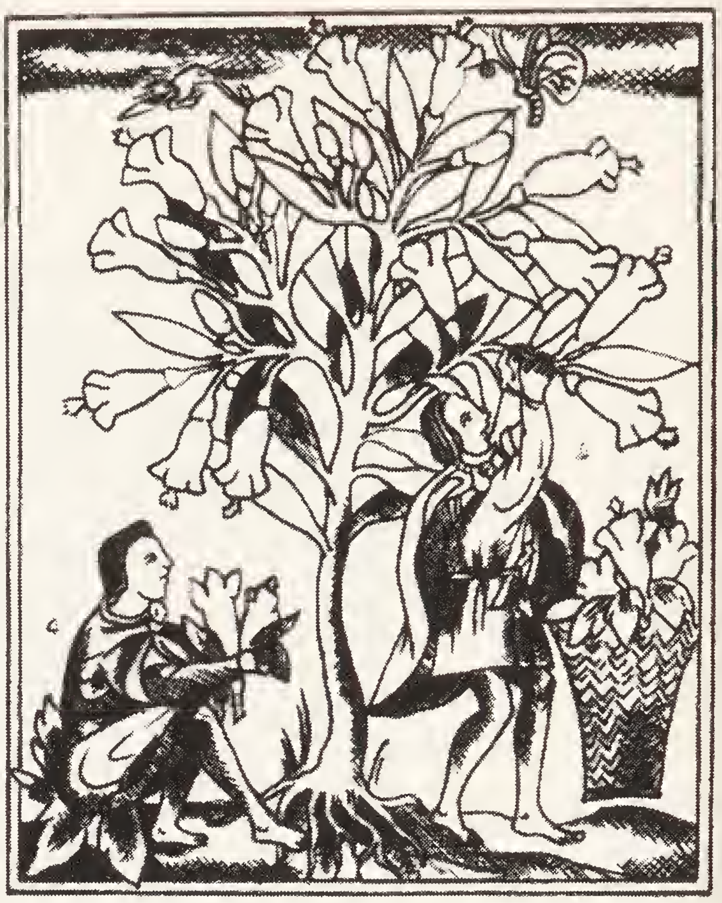
Within two years it was all in ruins, the princes were dead or shackled in irons, Cacamatzin had sung his last song, tortured to death by Alvarado. Moctezuma was dead. The population was decimated by smallpox. Thousands were taken as prisoners by the Tlaxcallans. The remnants had scattered.

Nothing but flowers and songs of sorrow
are left in Mexico and Tlatelolco,
where once we saw warriors and wise men.

Cacao beans continued to be used as currency (and did so until well into the nineteenth century), but several generations passed before *cacahuatl* reappeared as a beverage, in an altered form and with a new name, *chocolatl.* Sophie and Michael Coe, in *The True History of Chocolate,* agree with the Mexican philologist Ignacio Dávila Garibí that the most likely etymology of *chocolatl* is from the Maya word *chocol,* "hot," and the Nahuatl word *atl,* "water." The Coes point out that the Spaniards' first experience with chocolate was in the Maya lowlands. Another word, the Quiché Maya verb *chokola'j* means "to drink chocolate together."

The chocolate beverage that emerged among the creolized population of New Spain had another similarity to the Mayan tradition: it was drunk hot. It was also drunk sweetened. While some of the Aztec *cacahuatl* may have been sweetened with honey or *Quararibea funebris,* the new *chocolatl* was sweetened with cane sugar, and *really* sweetened. Early recipes (as do current) call for more sugar than cocoa. And the spices were changed: black pepper sometimes replaced chili, and spices such as anise and cinnamon were added instead of, or in addition to, the native flowers.

A carved stirring stick, the *molinillo,* came into use to froth up the foam, but aside from the significant sweetening with sugar, *chocolatl* was prepared much as it had been for thousands of years. In its slightly altered form, chocolate entered Europe by way of Spain in the early seventeenth century. In Spain, as at Tenochtitlan, chocolate was mainly drunk by the nobility, and a few wealthy merchants.



SAHAGUN, QUARARIBEA FUNEBRIS

Signatures The Spanish even continued the Aztec association of cacao with human sacrifice by serving hot chocolate to those attending an *auto-da-fé,* and, in the finest Mexica tradition, sometimes to the victim as well as to the audience.

The Plant From Spain, chocolate passed first to Italy, then later to France, sometime in the mid-seventeenth century. As had been the case with tobacco, with coffee, and with tea, it was the medicinal properties of chocolate that first attracted attention and were the impetus behind its spread. Alphonse de Richelieu, the Cardinal of Lyon, and perhaps the first to use chocolate in France, used it to "moderate the vapors of his spleen."

In 1664, Francesco Maria Brancaccio, an Italian, wrote that chocolate

> *restores natural heat, generates pure blood, enlivens the heart, conserves the natural faculties.*

Ecclesiastical circles were fond of chocolate, and Brancaccio was defending chocolate as a medicinal drink. A debate was raging as to whether chocolate was or was not a food, and thus whether or not it could be drunk on fast days. Seven popes gave their opinions on this matter, which was not completely resolved for two centuries. Generally, the Benedictines thought that drinking chocolate broke a fast, while the Jesuits, who had some trading interests in chocolate, maintained that chocolate was purely a drink and could be drunk during Lent and fast days the same as wine.

Still, there were occasional proscriptions against chocolate, always unsuccessful. When a Jesuit college tried to prohibit the drinking of chocolate, students dropped out in droves. In San Cristóbal de las Casas, a bishop prohibited the aristocratic ladies from drinking chocolate during mass. The Ladies quit going to the cathedral, and instead worshipped at a nearby nunnery where chocolate was in favor. Not long after, the bishop was poisoned, the poison administered in a cup of chocolate. A saying arose: "be careful of chocolate in Chiapas." Chocolate became a favored vehicle for poisons in Europe as well, its strong flavors masking those lethal.

The spices added to watery chocolate in Europe were rich and varied. The following Tuscan recipe calls for ambergris. Other recipes included musk, cloves, and cayenne pepper.

> *The Renowned Jasmine Chocolate*
> *of the Grand Duke of Tuscany*
>
> *Ingredients:*
> *10 lb. toasted cacao beans cleaned and coarsely crushed*
> *Fresh jasmine flowers*
> *8 lb. white sugar, well-dried*
> *3 oz. "perfect" vanilla beans*
> *4 to 6 oz. "perfect" cinnamon*
> *2 scruples (1/12 oz.) ambergris*
>
> *Method:*
>
> *In a box or similar utensil, alternate layers of jasmine with layers of the crushed cacao, and let it sit for 24 hours. Then mix these up, and add more alternating layers of flowers and cacao, followed by the same treatment. This must be done ten or twelve times, so as to permeate the cacao with the odor of the jasmine. Next, take the remaining ingredients and add them to the mixed cacao and jasmine, and grind them together on a slightly warmed metate; if the metate be too hot, the odor might be lost.*
>
> *—in Coe and Coe, The True History of Chocolate*

The Spaniards sometimes made the chocolate into a thick dark syrup, and ate it as a hot paste on bread. Chocolate is still served this way in Granada. (It is very good.) While there are records of the Spaniards sometimes adding eggs and milk to chocolate, it was the English who first made milk the customary base for hot cocoa.

Chocolate was available at the English coffeehouses in the latter seventeenth century, but, like tea (which was even more expensive), it was a luxury item. The English acquired cacao plantations when Cromwell's forces captured Jamaica. Pepys enjoyed chocolate. A doctor, Henry Stubbes, prepared chocolate for

Charles II, doubling the usual number of beans. Stubbes, as many before him and since, was convinced that chocolate was an aphrodisiac: "The great Use of Chocolate in Venery, and or Supplying the Testicles with a Balsam, or a Sap . . ."

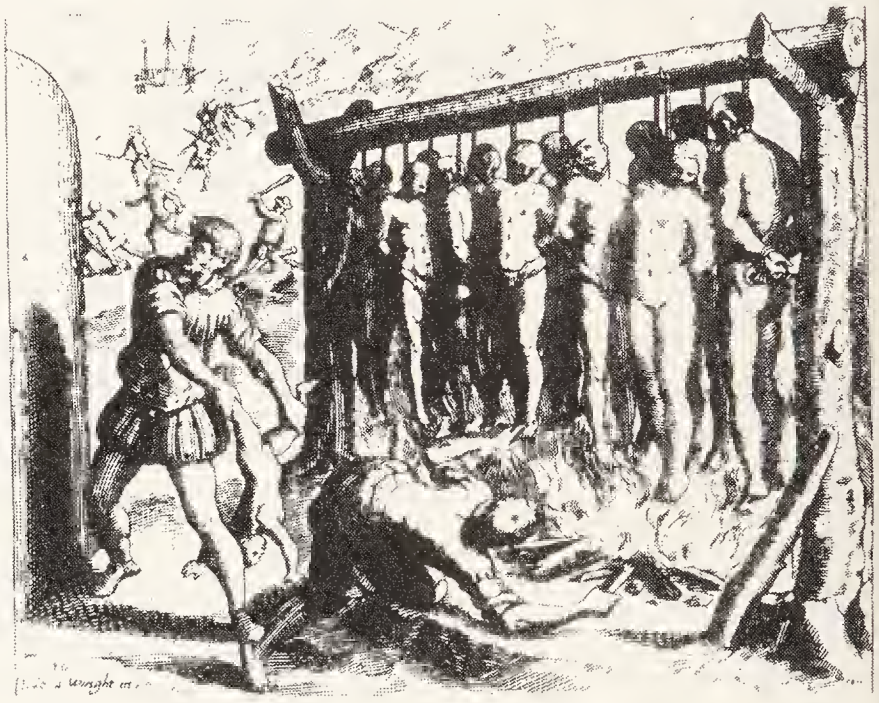
The Ally

Chocolate made with water is quite good, especially if you start with whole chocolate that hasn't been defatted instead of cocoa. Boil the water, remove it from the heat, and add an ounce or an ounce and a half of chopped up chocolate per cup, depending on whether the chocolate is sweetened. Try using unsweetened, and then adding minimal quantities of sugar to your taste. Try adding some spices. A little cayenne pepper is quite good, as is pasilla chili powder. Stir to dissolve the chocolate. Or use a blender. If you don't have a blender, you can get a head of foam by putting the chocolate in a canning jar and shaking it. The bitterness has a certain poisonous appeal.

History

We've already written about the slave trade in relation to tea and sugar, but chocolate was equally voracious for forced labor, both for sugar and to work the cacao plantations themselves. The English became prominent in sugar slavery, but the Dutch led the chocolate trade, carrying several millions of slaves across the Middle Passage to Curacao alone. Other European countries, Spain, Portugal, France, and Denmark, had their own ships.

"An Outpost of Progress."



CRUELTIES OF THE CONQUISTADORS, 1589

Signatures

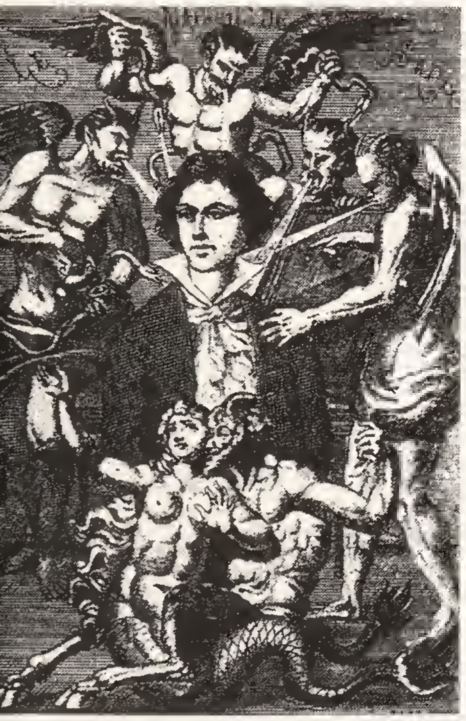
The Marquis de Sade was a chocoholic. He spend most of his life in prison, persecuted for his writings by whatever regime happened to be in power. De Sade was one of the instigators of the storming of the Bastille. What is most remarkable is that he performed this instigation from the inside—he was one of the seven prisoners being held in the Bastille at the time. He made his speeches to the crowds outside through a megaphone he had constructed from a urinal.

I first learned of de Sade from a philosopher and cat burglar from New Orleans named "Shorty." Shorty knew all de Sade's books, and could quote from them. He could carry on for hours (a much appreciated skill, given our circumstances) outlining the plots and describing various scenes. Like Shorty, de Sade's characters were non-stop talkers, continuing their philosophical eloqutions through all manner of sexual orgies, orgasms and ejaculations, without pause. Shorty remembered all that part too, and could outline their arguments and speeches.

Shorty liked chocolate. His other favored author was Sir Richard Burton.

De Sade was a writer. There is little evidence that he ever practiced the orgiastic cruelties, flayings, dismemberments, etc., etc. that he wrote about with such gusto and detail. He did, it seems, organize at least one orgy, at which the prostitutes and other guests were all served chocolate. That the chocolate was laced with Spanish fly, as was later claimed, is unlikely. According to the story, the orgy was successful, and the Divine Marquis was able to enjoy his sister-in-law, for which he was ordered arrested. He fled with his servant, was arrested, escaped, and was then sentenced to death *in absentia.*

The chocolate, the flaying of the victims, the dismemberment, the drinking of blood, and the cannibalism in de Sade's writings are all familiar enough from the rites of Tenochtitlan. Not believing that such acts were necessary to make the sun rise, de Sade made it all sexual, and as consciously offensive as his fertile imagination would allow. Meanwhile, on the outside, the guillotine kept falling.



M. DE SADE

fertile imagination,
because there is no fertility in the sex acts—
the libertines abhor "breeding."

De Sade's single erogenous zone is his imagination, at once his stimulation and his organ of generation, his womb.

> *The imagination is the only cradle where pleasures are born. [Otherwise] all that remains is the physical act, dull, gross, and brutish.*
>
> *—Sade: Juliette*

Imagination is magic. Imaginative sex is sex magic. Visualization. Dances. Drums. Or colored lights on a stage.

In *Sexual Personae,* Camille Paglia astutely points out the fraternal relations between de Sade and Blake, literary-wise. She claims that de Sade was a corrective reaction to Rousseau, who portrayed nature as wholly benevolent. If Rousseau's Great Mother were Isis, then de Sade added Kali.

Yet de Sade's sexuality, despite its prophetic vision of twentieth-century serial killers, is essentially autoerotic. Rousseau, no less imaginative, put it into practice and remained the son/lover of Great Mother throughout his life. Like de Sade's characters, he sought to transcend possessiveness, but he did it through love rather than cruelty. All of his important teachers were women, and the happiest years of his life were spent with "Mamma," Mme. de Warens, in a *ménage-à-trois* with her majordomo, the inestimably honorable M. Anet.

> *Thus between the three of us was established a bond perhaps unique on this earth. Our every wish and care and affection was held in common, none of them extending outside our own little circle. Our habit of living together, to the exclusion of the outer world, became so strong that if one of the three was missing from a meal or a fourth person joined us, everything was spoiled; and in spite of our private relationships even our* tête-à-têtes *were less delightful than our being all three together.*

Paglia contrasts the Apollonian hierarchy of the Enlightenment with the sadomasochism of Romantic democracy. The sulphurous odors of poison are strong here, and we should pay attention. That Dionysus would make an appearance in idyllic Arcadia should not surprise us—there is more to his revels than a picnic in the woods. But we must examine the political implications of Paglia's fascination with dominance closely, as the propositions "nature is hierarchical" and "sex is violence" are easily co-opted by armed gangsters to rationalize mass slaughter and enslavement. The fact remains, as Kropotkin pointed out, that throughout most of our history human societies have lived cooperatively and comparatively peacefully, without a police force.

From his prison cell, de Sade wrote regularly to his wife. He always asked her to send him chocolate. De Sade liked his chocolate dark:

> *black inside from chocolate as the devil's ass is black from smoke.*

The Plant Early in the seventeenth century, large stands of *forastero* cacao trees were discovered in the coastal lowlands near Guayaquil, Ecuador. The forest around these trees was cleared, and the stands were expanded by further planting. *Forastero* cacao is quite inferior to *criollo* cacao—the beans are hard, dry, and bitter—but thanks to its hardiness and to African slaves, it was cheap. By the early nineteenth century almost half of all the cacao produced in New Spain was *forastero.*

In the Amazon the Jesuits also found *forastero* cacao, and established a huge force of enforced Indian labor to harvest the beans. Venezuela, by contrast, planted *criollo* cacao, both on the coastal plains and on the island of Trinidad. When *forastero* cacao was later introduced to Trinidad, the trees hybridized with the *criollo* trees and produced a new variety, *trinitario* cacao. *Trinitario* combined the hardiness of the *forastero* trees with some of the flavor of the *criollo,* and became a favored variety.

Today the major producers of cacao are the Ivory Coast, Brazil, Ghana, Malaysia, Indonesia, and Nigeria. Eighty percent of world production is *forastero,* ten to fifteen percent is *trinitario,* and only five to ten percent is *criollo.* Most of the *criollo* chocolate is used by upscale European confectioners, but I have heard that a progressive group in Venezuela will soon market dark bars of fine, pure *criollo* chocolate.

The Ally Chocolate traveled with sorcery and conjuring, with the *nahualli,* with prophecy, and with poetry. And though Voltaire acquired a taste for chocolate in his later years, our other model chocoholic, after the Divine Marquis, is Johann Wolfgang von Goethe (1749–1832). Goethe occasionally drank coffee, but chocolate was his abiding passion.

Along with chocolate, Goethe had a life-long interest in shamanism. This interest was certainly abetted, if not sparked, by his friend Johann Gottfried Herder (1744–1803), and Goethe may even have collaborated in some of Herder's writings. Herder's theories of the shamanic origins of religion predated those of Weston La Barre and Gordon Wasson by two centuries. (Herder also opened the way to modern poetic theory by modifying Aristotle's theory of mimesis. Herder said that the artist did not imitate nature, *natura naturata,* but creation, *natura naturans.*)

Herder was a philosopher and theologian. Like Didereot, he carefully read the mounting number of travelers' reports about shamanism in Siberia, Mongolia, and North America. Unlike Voltaire, Herder had a quick and critical eye for the eurocentrism that permeated most of such writings, and deplored it. His writings on the methodology of field work anticipated anthropology. In fact, Johann Blumenbach, who was a professor at the university at Göttingen and a friend of both Herder and Goethe, is called the founder of anthropology. Göttingen quickly became the center of anthropological learning and also of artifacts, as the students trained there would send their specimens back to their alma mater. Goethe visited Blumenbach at Göttingen and saw the famous Tungus shaman costume there that a Göttingen alumnus, Baron Georg Thomas von Asch, had sent to Blumenbach from Siberia.

Herder refused to dismiss magic out of hand, and read Paracelsus, Agrippa, the Renaissance neoplatonist Pico, Böhme, even Fludd. He never believed that mathematics could model the universe, because there were other variables that were intrinsically nonmetrical. In this he anticipated Sir Arthur Eddington, and in some respects "hidden variable" physicists such as Albert Einstein and David Bohm. Herder was interested in the effects of weather, climate, and geography on human psychology. He was seeking a holistic approach to knowledge, incorporating not only observation and experiment, but also diet, sexuality, and spirituality.

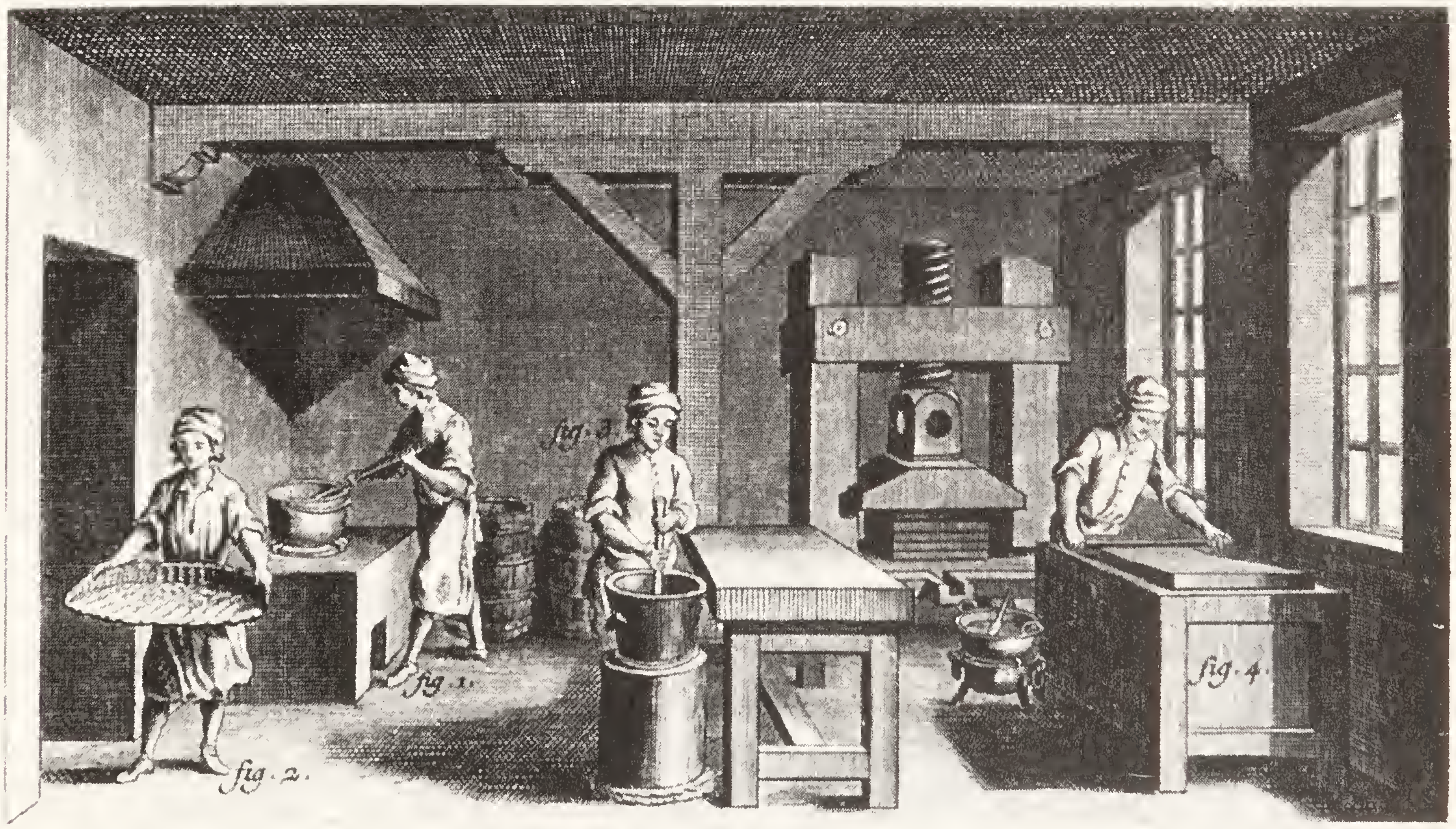


fig. 1.
fig. 2.
fig. 3.
fig. 4.

EIGHTEENTH-CENTURY CHOCOLATE MANUFACTURE,
FROM THE ENCYCLOPÉDIE OF DIDEREOT AND D'ALEMBERT

> *Herder had come to believe that enthusiasm, shamanism, and all aspects of the irrational had to be acknowledged openly and confronted. They were natural. Whenever the natural was disavowed, or ignored, or repressed, or imprisoned by predetermined codes, whether Franco-Roman neoclassicism or any other, the eventual result could, he maintained, only be an eruption of gigantic proportions.*
>
> *—Gloria Flaherty, Shamanism and the Eighteenth Century*

Thus he understood the French Revolution. He had read his *Bacchae.*

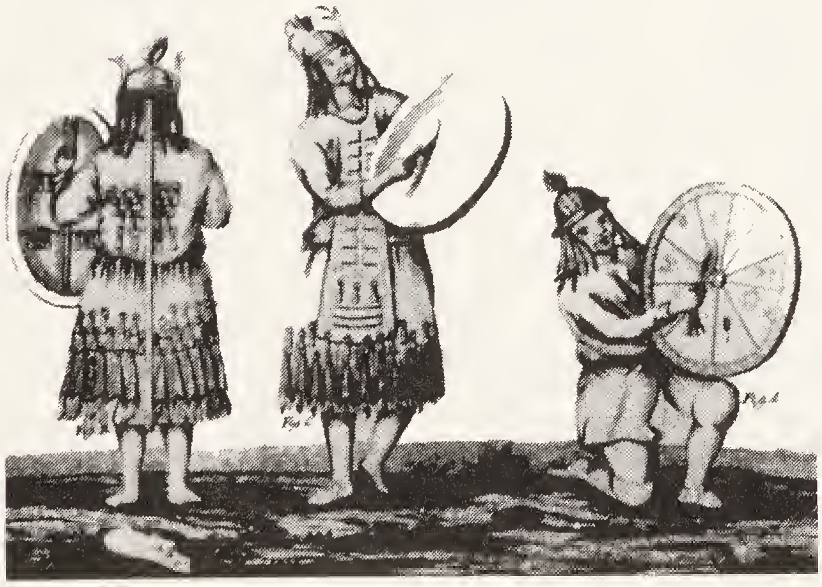
Herder's prototypical shaman was not Dionysus but Orpheus. Herder saw the similarity between Orpheus and the Egyptian Hermes, and he recognized that they represented shamanism entering the historic epoch. Herder proposed that shamanism, far from being the chicanery of jugglers, was the origin of all religion. He named Zoroaster as the first to systematize shamanic practices and beliefs into a codified written corpus. It is easy enough to see Rilke as one of Herder's spiritual descendants.

> *Herder persisted in his belief that poetry, or better, performed song, touched the human psyche in such a way as to release something into the soma that subdued rage, relaxed stress, and enabled individuals to tolerate each other's whims and foibles. It is almost uncanny that the twentieth century's highly technological research into the physiological workings of the brain explains the theta waves as being induced by images, poetry, music, and performance to help regulate the body's immunological system. Herder firmly believed that the shaman's performing talents had produced human civilizations and allowed them to develop.*
>
> *—Gloria Flaherty, Shamanism and the Eighteenth Century*

Goethe shared his friend Herder's mistrust of mathematical science, seeing it as the third, "dogmatic" stage of science. Goethe proposed that there were four stages, or historical forms, of science. The third stage dismisses the first as superstition, and limits the second stage to refinement of its own paradigm. But Goethe envisioned a fourth stage, and tried to practice it in his botanical writings and his theory of color.

Four epochs of the sciences:
childlike,
poetic, superstitious;
empirical,
investigative, curious;
dogmatic,
didactic, pedantic;
ideal,
methodical, mystical.

—Goethe, Maximen und Reflexionen



PETRUS SIMON PALLAS, SHAMANS IN THREE POSES, 1771–1776

Goethe maintained that those who deprecate superstition were worse off than pre-scientific peoples: "we find no easy substitute for the wondrous creatures, gods, soothsayers, and oracles of the ancients."

Like the Eskimo shaman Kilimê, Goethe found creativity mysterious. For Goethe, inspiration was a kind of possession, a dealing with spirits and demons. Poets and artists were those who could open themselves to the demons.

> *In poetry, especially in that which is unconscious, before which reason and understanding fall short, and which therefore produces effects so far surpassing all conception, there is always something daemonic.*
>
> *—Goethe, Conversations (Eckermann) (F.174)*

The Art is magical work, shamanic work. All of it is about healing. What Herder found in Orpheus, Goethe found in the Faust legend, and Faust became the focus of his life's work for more than fifty years.

Scholar and doctor,
conjurer and alchemist:
he DID have a laboratory.

The shamanic ally is Mephistopheles, a fallen angel.

In *Faust,* the poison path is so completely articulated that it is difficult to excerpt only a few verses. It is worth our time to follow this chocolate lover briefly through what is surely the greatest literary work in the West to investigate shamanism. Goethe presents the preparation, the initiation, the methodology, and many succinct nuances of decorum. There is even a Wager.

If with flattery you can ever beguile me
into finding delight within myself,
if with pleasures you can wile me,
then let that day be my last.
That is my wager . . .

If I should ever say to any moment:
Verweile doch, du bist so schön,
(Linger awhile, you are so beautiful!)
you may slap me into fetters—
for I would gladly perish then.

Faust I: 1694

Faust's journey beyond rationality is through women: he follows the Desire Path and presents a profound elucidation of our Way. Even with the help of the Great Ally, Desire remains. Devils and demons enter and speak, but Desire is the poison from which there is no escaping.

Go on, try
one more time . . .

Faust enters altered states of consciousness. In a *Hexenkuche,* a witch prepares him an elixir. And we get a clue that besides Mephisto and Desire, Faust has at least one other poisonous ally: Doubt. But after Faust sees the face of Helen by gazing into the witch's mirror, Mephisto has no trouble overcoming Faust's resistance, and he drinks the medicine to the bottom.

Du siest mit diesem Trank im Leibe
Bald Helenen in jedem Weibe.

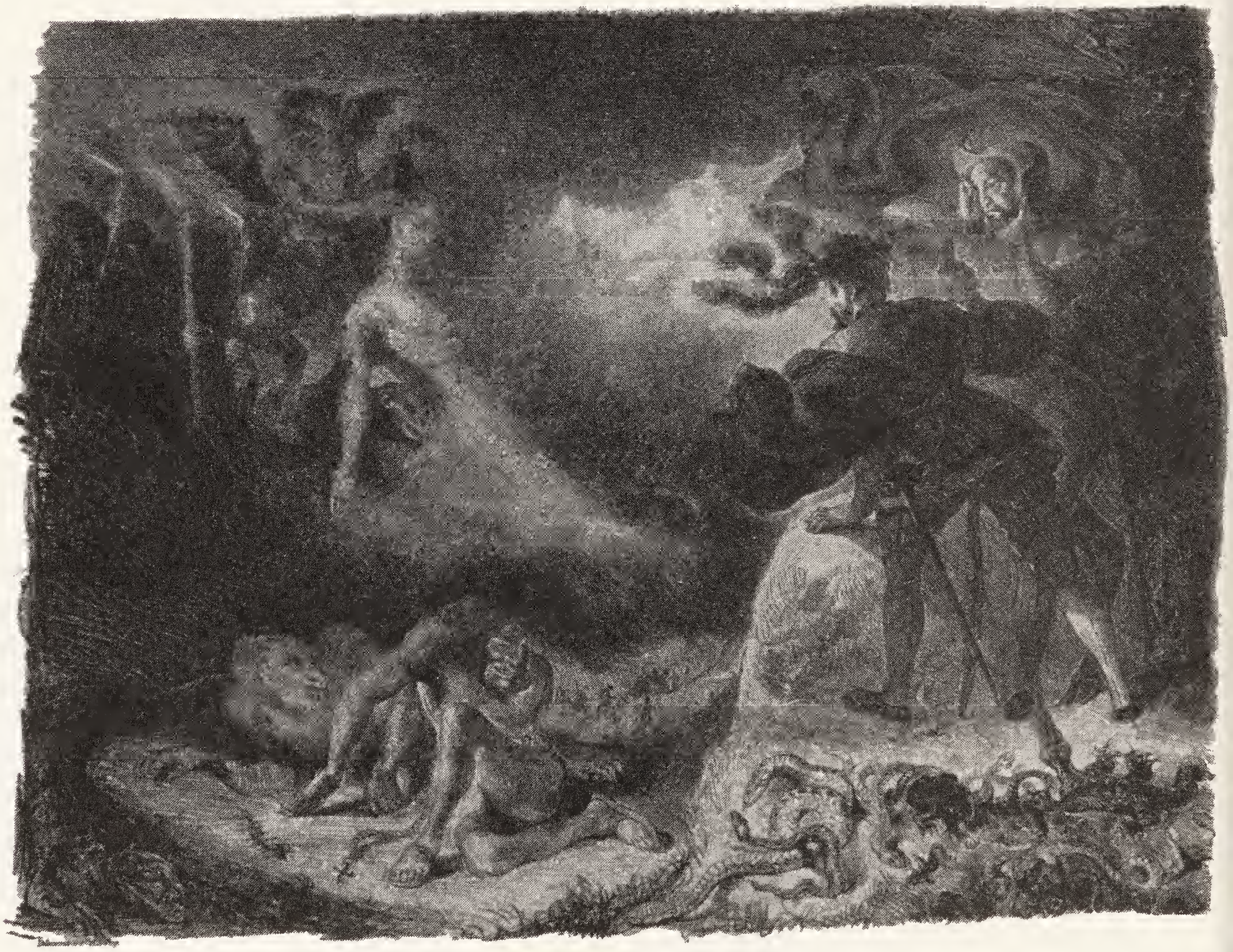
Once this drink is in your frame,
You'll see Helen in every dame.

Like, probably ecstasy. Thus, Gretchen.

Mephisto takes Faust to Walpurgis Night.

kind of like a Burning Man

He offers him a broomstick. Faust wants to go to the center of the frenzy, thinking there he will find answers, but Mephisto stops him at a quiet grotto, where the witches are more available.



FAUST'S VISION OF GRETCHEN ON WALPURGIS NIGHT

Besides, it is an ancient practice
To create small worlds within the great one.
I see young witches there, completely nude,
With older ones, just as cunningly veiled.

(*as I said . . . kind of like Burning Man—dancing on the periphery.*)

As Faust dances with a young witch, the voice of Enlightenment speaks, trying to deny everything that is happening as non-logical and non-scientific.

You are still there? Now that's unheard of!
Please disappear! Surely we've got enlightenment.
This devilish rabble won't follow the rules.

Failing to sweep away the dancing visions with his command, the "Filth-seer" promises to endure and someday to write a "trip report" in which there are neither demons nor poetry.

A "scientific" trip report . . . Shall we count them?

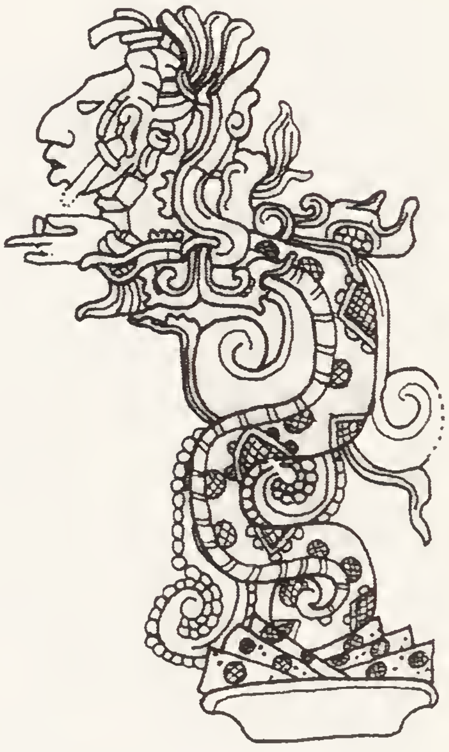
Mephisto chides Faust for abandoning his seduction of a naked young witch just because a red mouse climbs out of her mouth. In a dream within a dream, Goethe presents a parade of Types:

The Realist, The Child-of-the-World, The Sensualist, The Sceptic, The Awkward One, The Purist, The Idealist, The Matron, etc., etc., etc.,

and records their reactions to the phantasmagoria. Faust, Mephistopheles, and the witches are content to know that

It would seem we've been admitted
to the sphere of dreams and magic.

In Part Two, in the first conjuring of Helen, there is even a Scythian tripod with pleasing fumes that stir the soul. Faust is the acting shaman, and the ladies comment on a certain femininity to his movements. Helen appears, but Faust ruins everything in this first attempt by trying to grab her.



MAYA VISION SERPENT

Georg Lukács reads in *Faust* a critique of bourgeois capitalism. Money is magic: Mephistopheles invents paper currency and, like a spell, it transforms both people and countryside. Mephistopheles sets about building up Faust's commercial fortunes and remarks:

Unless I'm all at sea about maritime matters,
war, trade, and piracy are together
an inseparable trinity.

Goethe knew the sources of his chocolate!

Lukács is aware of the ancient bond between love and magic. Poison is potion, and potion is love potion. But in a corrupt age the greatest aphrodisiac, as Henry Kissinger once quipped, is wealth and power. Faust seduces Gretchen with jewels.

while the poor boys
make do
with poems.

But Lukács believes that in bourgeois society the demands of wage earning can make love a prison, especially for the young. Love is necessary to complete our Path, but we can see that from a magical perspective monasticism has nothing to do with morality—it's just a way to avoid overwhelming complications while one is most vulnerable.

> *In a society divided into classes, therefore, a premature union, even one founded on the deepest and most genuine love, can become the starting-point of irresolvable tragic conflicts. If it endures, the young man involved in the union will be the victim; if under the pressure of his fettered possibilities for development, he breaks away, then the girl must be sacrificed.*
>
> *—Lukács, Goethe and His Age*

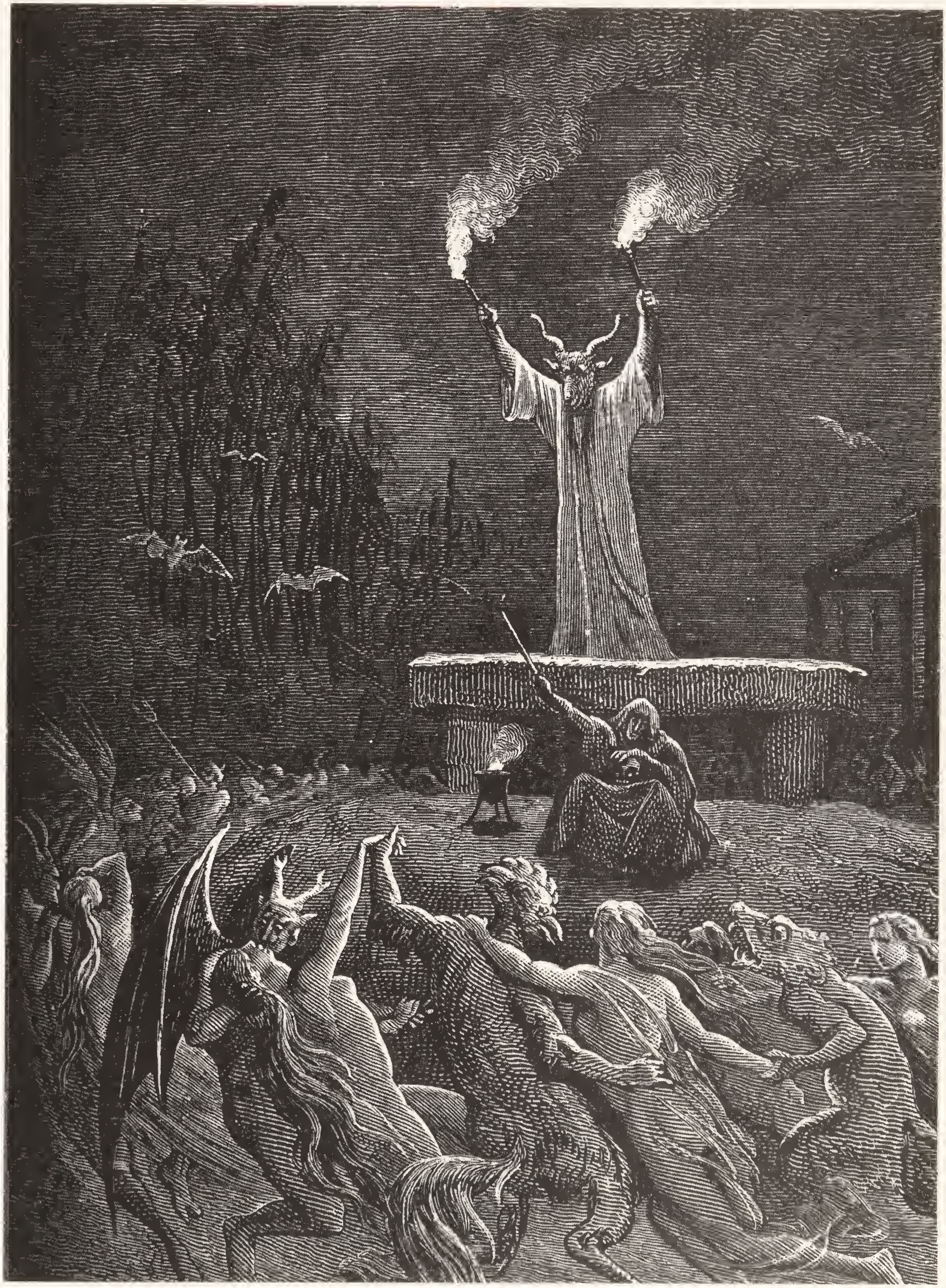
If Gretchen is partly a symbol of the consequences of coercive seduction on those with less power, Goethe is not content with moralistic simplicity. Nor, despite current fashion, ought we be. Faust doesn't abandon Gretchen, in spite of the carnality of his original intentions—the Work is genuine. But Gretchen is not ready for the deeper poisons, hath not the luck. She shirks from Mephisto. She cannot cross over and Faust must leave her to her Salvation.

Gretchen's lessons were not lost on Faust, and in fact she returns at the end of the play to be his teacher again. But first Faust must find the woman who is fully his equal, the shamanic Queen of Heaven: Helen of Troy.

Alchemically, *Faust: Part Two* progresses through the *Rubedo,* the tempering. Faust does obtain Helen, and they name their child Euphorion.

Go on kid, look it up yourself. This is about you.

Euphorion wants to climb to the high places, he wants to join the fight for the Good, he wants to fly. And we have the incongruous scene of Faust and Helen as Mom and Dad, Faust telling Euphorion to be careful and not to take any risks, to just have a nice quiet time in the country. But Euphorion is Icarus. He flies too high and he dies. Like Daphne, Helen dissolves in Faust's arms.



WALPURGIS NIGHT

I have not fought my way to freedom yet!
If I could rid my path of magic,
could totally unlearn its incantations,
confront you, Nature, simply as a man,
to be a human being would then be worth the effort.

Faust next resolves to do Good Work in the world. He dreams of creating new housing and new living space. As he goes about subjugating the earth, Baucis and Philemon become "collateral damage" of rampant technology. Even as the Lemures are digging his grave, Faust believes they are working on one of his canals.

In the closing stanza Goethe says:

All that is transitory
is but a metaphor.

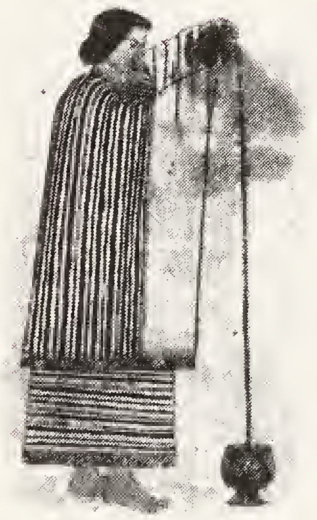
One thinks of Nezahualcoyotl. The poem ends:

Das Ewig-Wiebliche
Zieht uns hinan.

The Eternal Feminine
Leads us onward.

For all of those on the path of knowledge in a technological age, there is one last prescient and haunting passage in Lukács:

> *When Faust seeks to liberate himself from magic, he is striving after a normal human life in which he would be able to realize practically what he regards as right only through his own force, his* own *activity. However, as Goethe knows and Faust suspects, this is impossible. Without Mephisto's help, Faust would have to return to the desperate impotence of his study room. Whether or not this return takes the form of accepting a subordinate position as an engineer in a capitalist firm is irrelevant to the problem.*
>
> *—Lukács, Goethe and His Age*



Sigh.

History

In 1828, a Dutchman named Coenraad Johannes Van Houten discovered a way to remove most of the cocoa butter from chocolate. The resulting mass was dry enough to grind into powder, and, alkalinized with carbonate salts, could be mixed with water. This invention of "cocoa," along with the increasing use of chocolate in confections, brought about a huge increase in the per capita consumption of chocolate. As we have already noted, this increase in chocolate consumption also brought about a large increase in the demand for sugar, and was a driving force of the slave trade.

Edible chocolate in bar form was the invention of the Fry family in England. The Frys used Van Houten's process to make cocoa, and then mixed it with sugar and melted cocoa butter, still the way the best bar chocolate is made. The Frys were Quakers and refused to buy cacao beans from Portuguese West Africa, where some of the worst working conditions prevailed.

The food of the gods seemed to attract Godly men. (But see notes.)

The favorite drug of teetotalers.

The other great English chocolate company, Cadbury, was also a family of Quakers. The Cadburys built a company town for their workers along progressive lines, with housing, a dining room and a reading room for the workers, and prohibited alcohol. In the United States, Milton Hershey, a Mennonite, went even further. Hershey came up with a process to mass produce the milk chocolate that had been invented by two Swiss, Henri Nestlé and Daniel Peter. Hershey founded his own town, named "Hershey." Along with a school for orphan boys, Hershey's town contained five churches, the Hershey Department Store, the Hershey Bank, the Hershey Hotel, a free library, fire department, gardens, a zoo, and a rollercoaster. Hershey later built another Chocolate Town in Cuba.

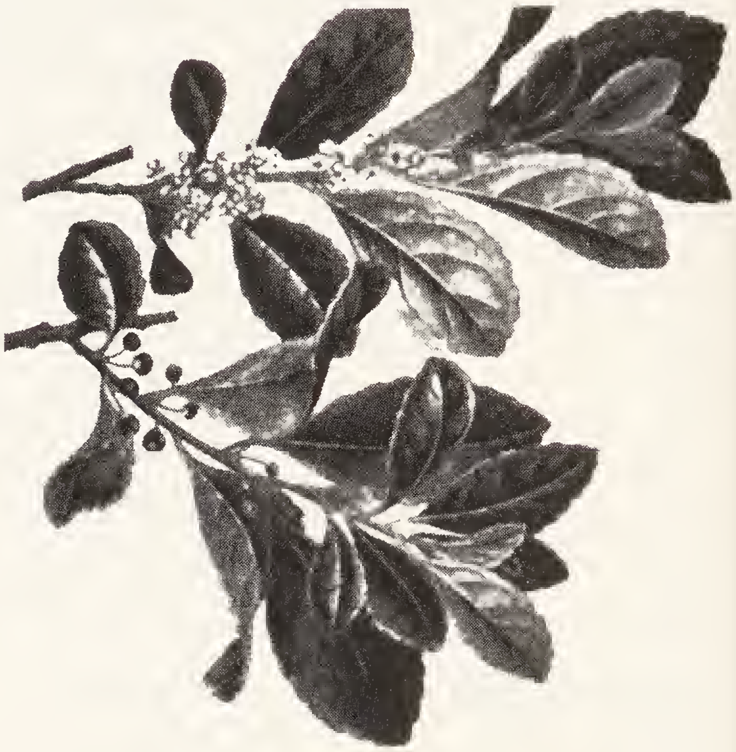
The Ally

Yolletl-eztli:
Linger a while, precious flower.
Chocolate song: red valentines
in a heart-shaped box

ILEX VOMITORIA

Related species — *Ilex guayusa, Ilex paraguariensis. Paullinia cupana* (related by chemistry, not phylogeny).

Common names — *Ilex vomitoria* is the "Black Drink": *yaupon,* or *cassina. Ilex paraguariensis* is the well-known yerba mate of southern South America. *Paullinia cupana,* best known from Brazil, is called guarana.



ILEX PARAGUARIENSIS,
STARKS, 1981

Chemistry — All of these plants contain caffeine.

Taxonomy — *Ilex* is the holly genus, in the Aquifoliaceae. *Paullinia* is a woody liana in the Sapindaceae.

Ilex vomitoria is most closely related morphologically to three Caribbean species of *Ilex* growing in cloud forests. One other species, *Ilex chiapensis,* from Chiapas and Vera Cruz is included in the series Vomitoriae. *Ilex guayusa,* and *Ilex paraguariensis,* appear to be related more remotely.

Ilex vomitoria is incompatible with any of the other *Ilex spp.* in the United States, but has produced hybrids with two Asian species of *Ilex*. The phylogeny of the Asian *Ilex spp.* appears to mirror that of the New World species, the two branches separating and developing in their similar ways sometime during the Tertiary.

Part Used — The leaves (of *Ilex spp.*), roasted and made into a tea.

How Taken — Drunk boiling hot to maximize caffeine absorption.

Effects — Briskly stimulating.

Pharmacology — Caffeine has been called the only true cortical stimulant known to modern medicine.

The Plant, Ilex vomitoria — Yaupon is the only North American holly known to contain caffeine. The plant is dioecious: male and female flowers appear on separate plants. Not the most common strategy among plants, but those who use it, such as marijuana and willow, seem to get by.

Ilex vomitoria grows along the Gulf Coast from Corpus Christi in Texas to south of Apalachee Bay in Florida, up the East Coast from Cape Canaveral to Cape Hatteras, at scattered places inland in southern Georgia, northern Florida, southern Alabama and Mississippi, southeastern Texas along the rivers, and between the Red River and the Arkansas into the southeastern tip of Oklahoma. With several exceptions, most of the indigenous tribes and peoples inhabiting the areas in which *Ilex vomitoria* grew used the black drink. A number of tribes further inland obtained the plant through trade, or through annual pilgrimages hundreds of miles to the coast. Cabeza de Vaca specifically mentions drinking ceremonies among nineteen of the tribes through which he wandered. His accounts, first published in 1542, closely match those of black drink ceremonies described by later explorers.

The black drink was often used ceremonially as a purification and cleansing rite. Early observers noted that an "eerie, awesome" vocalization was intoned by the Indians during the drinking. General Oglethorpe drank yaupon with the Creeks during his treaty mission in 1739. More informally, many tribes drank yaupon every morning (and purged), along with smoking tobacco, as a social ritual of friendship. The Cherokees called yaupon "the beloved tree." The Choctaw called it *Esta Hoola,* "the most beloved." A Quaker merchant named Jonathan Dickinson, who was shipwrecked on the east coast of Florida in 1699, reported a black drink ceremony among the Ais that lasted three days: fasting, dancing, drinking the black drink. Which says something about the ease and pace of life in those times.

Vomiting was common. But it seems most likely that this purging was voluntary—a ritualistic cleansing, and less an intrinsic property of the tea, since there are many reports, extending into this century, of both Indians and whites drinking yaupon tea without feeling any need to vomit. Large quantities of any hot beverage, especially on an empty stomach, tend to make regurgitation more . . . accessible. Yaupon tea was widely drunk during the American Civil War as a coffee substitute, especially in the South.

The medicinal properties of the black drink were widely recognized in the eighteenth and nineteenth centuries. Besides its use as an emetic, the black drink was used as a diuretic, and for kidney stones. Both Indian and white women in Texas drank the decoction for suppressed menses. The Catawba used the black drink for "mental troubles." The Choctaws used the black drink for divination. The Chitimacha smoked *Ilex vomitoria* in addition to drinking it.

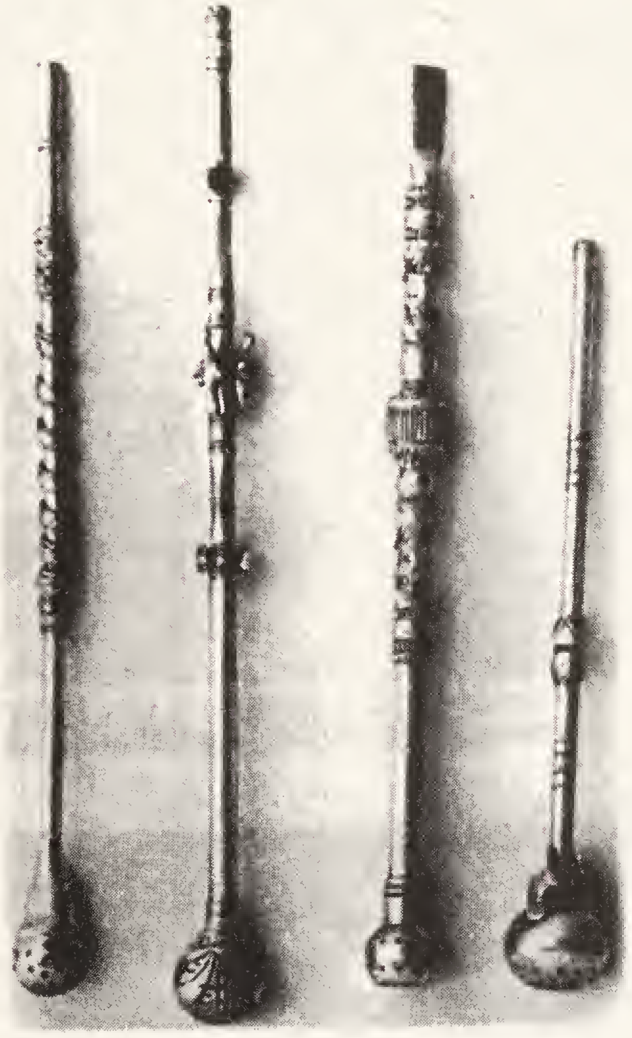
The black drink ceremonies are strongly evocative of Mesoamerica. At least as far back as 1000 CE, the black drink was associated with conch shell drinking cups incised with Mesoamerican style glyphs and figures. The black drink was often prepared

PAULINIA CUPANA,
STARKS, 1981

with a froth or foam on top. One Spanish friar, in his missionary endeavors, even used the bubbles on the black drink as a metaphor for the multitudinous aspects of God. The Apalachee engaged in a black drink ceremony before the big annual ball game with a neighboring tribe. One cannot help thinking of cacao.

Francis Jennings suggests that there was an actual migration and colonization of the Mississippi Valley by Toltecs around 800 CE, coinciding with the abandonment of Teotihuacan. Strong Mesoamerican influences appeared in the Mississippi Valley and throughout the Southeast at that time: a new and superior form of maize agriculture, cities such as Cahokia built around a truncated pyramid (distinctly different from Hopewellian "mounds"), and settled, stratified societies. It would have been natural to have found in the caffeine-rich black drink a substitute for the beloved black cacao.

Why has the black drink all but disappeared? For the Indians, the answer is not so difficult. They were overwhelmed by the European colonists and forced to move to Oklahoma, far from the richest sources of the plant. Their populations and their cultures were pressured to the point of extinction. And another plant appeared, better suited to their crisis: peyote.



MATE BOMBILLAS

Among the whites, we can only look to the overpowering presence of coffee. Today *Ilex vomitoria* is a common ornamental shrub in the environs of New Orleans.

The Plant, *Ilex paraguariensis*

Ilex paraguariensis, yerba mate, is widely drunk in the more temperate latitudes of South America: Brazil, Paraguay, Argentina, and Chile. Mate also has a reputation as a purgative, though this is by no means its customary use. Traditionally, mate is drunk from a gourd fitted with a silver stem, called a *bombilla:* the gourd being passed around the circle until everyone has drunk. It is said that one should not drink mate if one is chewing coca because of the risk of burning one's lips on the silver straw.

Indians in Argentina drank mate and called it *caa-matí,* a combination of a Guarani word meaning "herb" with a Quecha word, *matí,* which refers to the gourd.

> *The moon wanted to walk on the earth. She wanted to eat fruit and to bathe in a river. The clouds helped her. All night the clouds covered the sky so that no one could see that the moon was missing.*
>
> *The moon walked through the wonderful forests of the Paraná. She reveled in the*

MAYA MOON-GODDESS

> *new fragrances and the exotic and mysterious sounds. She swam in the river for so long that a peasant had to rescue her. When a jaguar was about to pounce on the moon and rip open her neck, the old man killed the cat with his knife. After that the moon was hungry, so the old man took the moon back to his hut. "We offer you our poverty," said the peasant's wife, and gave her some corn tortillas.*
>
> *The old man had built his hut in a clearing deep in the forest, far away from the villages. He lived there like an exile with his wife and daughter. When the moon returned to the sky she looked down and saw that her friends had no food—they had given her their last tortillas. The moon turned on her brightest light and asked the clouds to shed a very special drizzle around the hut. In the morning some unknown trees had sprung up there, with dark green leaves and white flowers.*
>
> *The old peasant's daughter never died. She is the queen of the mate and goes about the world offering it to others. The tea of the mate awakens sleepers, activates the lazy, and makes brothers and sisters of people who don't know each other.*
>
> *—Guarani legend (after Eduardo Galeano)*

Mate is deeply woven into Argentinian culture, from gauchos to tango to zen teachers. Many jokes, phrases, and metaphors from popular songs relate to mate and how it is drunk: sweet (*dulce*) or bitter (*amargo*), alone, spiced, in a circle, with milk, without milk, etc. Mate is so important economically that it was called the "green gold." During the Colonial period a *manada* of the herb was used to pay off workers—much as coca was used to pay off workers in post-conquest Peru. Poor people have to re-use the same mate many times, spreading and drying the herb in the sun.

Mate idioms

MATE AMARGO (BITTER): *You wish for nothing, you delay in acting.*
MATE DULCE (SWEET): *Friendship. I am glad to see you.*
MATE CON CANELA (WITH CINNAMON): *You interest me.*
MATE CON LIMÓN (WITH LEMON): *I do not want to see you.*
MATE CON LECHE (WITH MILK): *Respectful friendship.*
MATE CON CAFÉ (WITH COFFEE): *I was upset but I forgive you.*
MATE TAPADO (UNDER A LID): *Don't come back. Drink somewhere else.*
MATE MUY CALIENTE (VERY HOT): *I hang on your every word.*
MATE ESPUMOSO Y FRAGANTE (FROTHY AND FRAGRANT): *Reciprocated love.*
MATE CON TÉ (WITH TEA): *Indifference.*
MATE MUY DULCE (VERY SWEET): *You'll be talking to my parents.*
MATE HIRVIENDO (BOILING): *Hatred.*
MATE CON MIEL (WITH HONEY): *Marriage.*
MATE CEBADO POR LA BOMBILLA (THROUGH THE STRAW): *Antipathy.*
MATE FRÍO (COLD): *Scorn.*

The caffeine content of dried mate leaves is one to two percent, about half or two-thirds that of black tea. Tannin levels are lower in mate than in tea, but not by a lot. The young leaves are roasted before being used, much as the North

American Indians did with yaupon. Much of the mate supply in Paraguay and Argentina comes from wild trees.

> *Put a lot of herb in the gourd, so that it is almost filled. Add the hot water, put in the bombilla, and pass the gourd. The tea is astringent and mildly aromatic. The gourd is emptied quickly, but you can keep adding more water. The tea is very strong, so you don't need to drink a lot.*

A number of recent studies have been conducted investigating the use and health effects of mate, and several of these studies link mate drinking with increased risks of upper digestive cancers. One study, of a Brazilian city, found that one-third of the population rarely drank mate, one-third drank mate occasionally, and one-third drank it daily. The researcher found that those from rural areas, those who smoked cigarettes, and those without education tended to drink the largest quantities of mate. As "a large proportion of upper digestive cancer cases in those regions might be due to mate drinking," the researchers suggest that their data could contribute to "preventive intervention."

> *Shucks, and I thought it was the tannins.*

An Uruguayan study has found statistical correlation between bladder cancer and men who both drink mate and smoke black tobacco. Another Uruguayan study found the increased risk of renal cell cancer from mate drinking to be about equal to that of eating red meat, where "increased risk" is purely a statistical correlation. On the positive side, mate has been found to be comparable to ascorbic acid in inhibiting oxidation of LDL cholesterol—not merely a statistical correlation.

The Ally

Making the Rounds

When your luck turns to shit
and falling and falling
it leaves you stranded.
When you're deep in it,
desperate for a way out.

When you have neither faith
nor even yesterday's herb
drying in the sun.

When you tear your shoes
seeking that buck
just to fill your belly.

That's when the indifference of the world
—deaf and mute—
you will surely feel.

—Enrique Santos Discépolo, tr. by Robert Tindall

The Plant, *Ilex guayusa*

The leaves of *Ilex guayusa,* native to the Ecuadorian Amazon, have the highest caffeine content of any known plant. Along rivers in the Oriente, such as the Napo, the Tigre, the Pasta, and as far north as the Putumayo, the Indians dry the leaves and string rolls of them on a long piece of twine. Guayusa tea is considered a tonic for the heat, a property for which I can vouch, and jungle mornings seem incomplete without it. The taste is mild and pleasant—guayusa is not high in tannins as is tea.

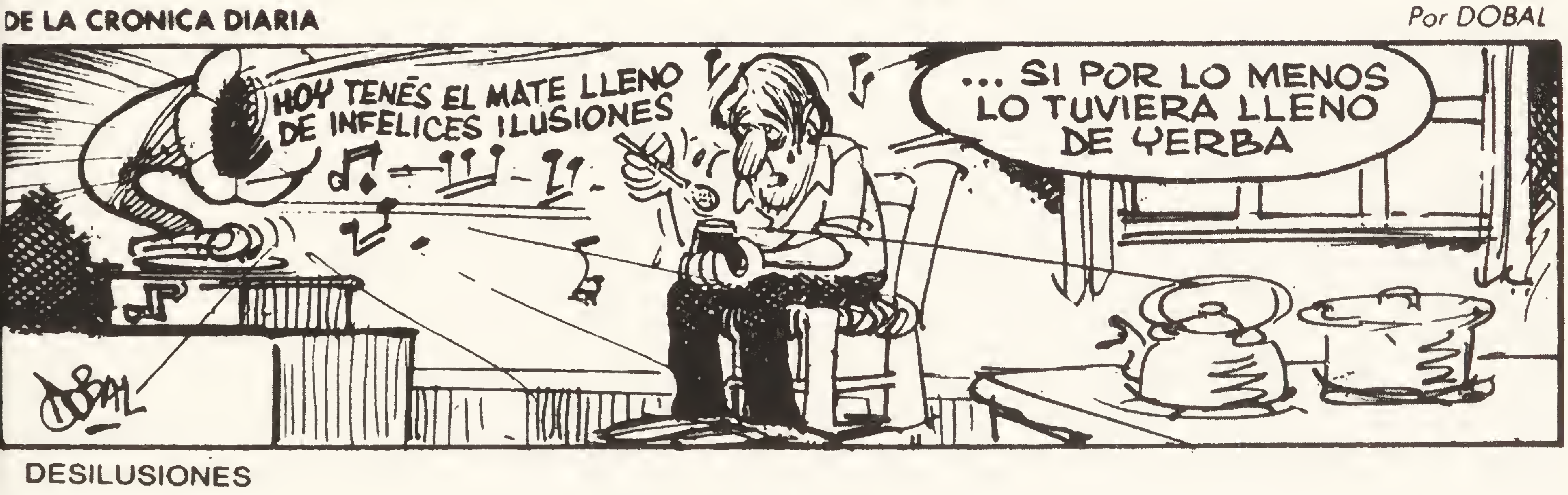
The use of guayusa is ancient. The Jesuits exploited the plant in the seventeenth century as a medicine. Richard Evans Schultes, along with Andrew Weil and Enrique Hernández, discovered a very old guayusa plantation near the small town of Pueblo Viejo, of large trees of great age. Schultes believes that it is the same plantation described by a Padre Serra in 1756.

As with *Ilex vomitoria,* guayusa is sometimes used as an emetic, mothers training their children by tickling their throats with a feather. In addition to its tonic and emetic qualities, guayusa is also recognized as a diuretic and a diaphoretc. Shamanically, the plant is used as an aid to dreaming, and is sometimes added to ayahuasca in place of, or in addition to, *Psychotria viridis..*

The Plant, *Paullinia cupana*

Guarana is prepared from the seeds of the *Paullinia* plant. The seeds are roasted, and then ground into a powder, which is mixed with water into a paste, and then molded into a hard cylindrical cake. The dried paste contains 2.5 to 5% caffeine, originally named "guaranine," along with tannins, theobromine, theophylline, xanthine, saponins, and a little-studied essential oil named guanine, reputed to be an aphrodisiac. The Amazonian Indians use guarana as a stimulant for hunting.

Some German researchers at Köln (Benoni, et al, 1996), investigated the essential oil of guarana, wondering if perhaps the estragole and anethole in guarana were being aminated *in vivo*, and the metabolite, 4-methoxyamphetamine, responsible


DE LA CRONICA DIARIA
Por DOBAL
HOY TENÉS EL MATE LLENO DE INFELICES ILUSIONES
... SI POR LO MENOS LO TUVIERA LLENO DE YERBA
DOBAL
DESILUSIONES

"DISILLUSION" FROM DOBAL'S DAILY CHRONICLE IN THE NEWSPAPER CLARÍN.
PHONOGRAPH: TODAY YOUR MATE IS FULL OF UNHAPPY ILLUSIONS.
MAN: JUST SO LONG AS IT IS FULL OF HERB.

for some of guarana's alleged activity. They found no 4MA in the urine of subjects taking guarana, and concluded that neither estragole nor anethole were psychoactive. They may be right, but there is a small *non sequitur* in their reasoning: the oils may have activity through another mechanism, or to one or more of the several other constituents of the oil.

Accumulating evidence suggests that tannins are carcinogenic and contribute to poor protein assimilation. While most of this evidence comes from studies of betel nut chewing, an article in *Basic Life Science* warns that users of guarana and kola could face similar dangers. The danger from tannins in tea, which are quite high, are mitigated by drinking it with milk. A number of other recent studies specifically on guarana (Mattie et al, 1998; Santa Maria et al 1998; Espinola et al 1997) found very low toxicity from guarana in laboratory animals.

The guarana plant is said to have sprung from the corpse of a son born to a wise female shaman who copulated with the snake god. The boy was slain by a jealous brother, and it was the tears of the slain boy's mother that germinated the liana. Similar myths are told about the origins of coca, and, in the West, the vegetation myths of Adonis and Tammuz. Shamans wishing to contact the great medicine-woman ingest large quantities of guarana.

In Brazil, guarana is sold as pills and in capsules, as well as in a popular soft drink. Guarana soft drinks have begun appearing in the United States. Various medicinal properties are ascribed to guarana: nervine, tonic, as relief from migraine and menstrual headaches, for neuralgia, and as an aphrodisiac.

The Ally Subjectively, both stronger and more diffuse than coffee, more like a quid of coca leaves. It is difficult to account for the strength of the effects from the caffeine content alone.

MATE DRINKERS

COLA NITIDA

Common names Kola. Goro (in Hausa).

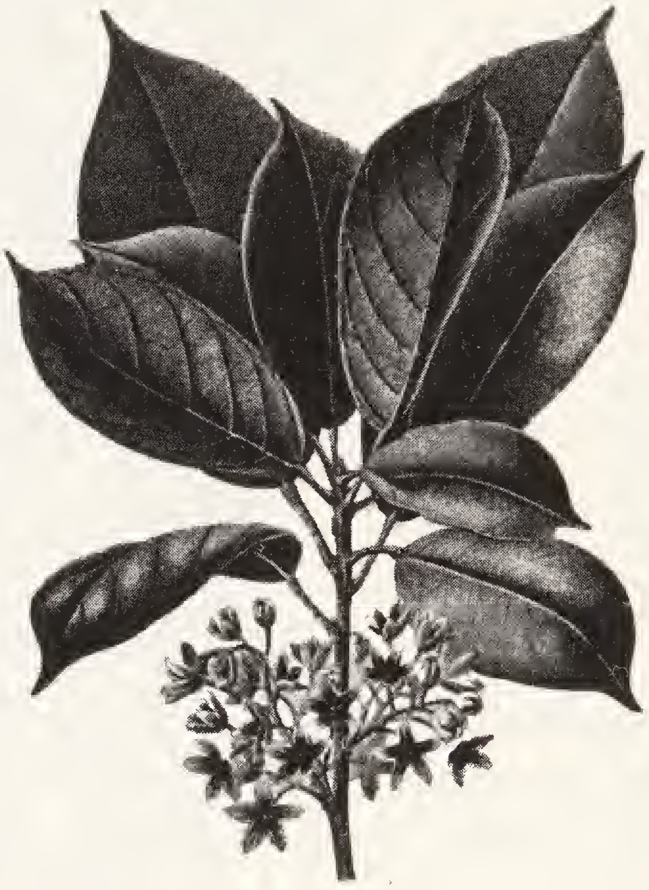
Related species *Cola acuminata.*

Taxonomy In the cocoa family, the Sterculiaceae.

Part Used The nut. The wood is valuable for carpentry and shipbuilding.

Chemistry According to James Duke, the nuts of *Cola nitida* average 3.5 percent caffeine, and 1 percent theobromine (which is a lot). *Cola acuminata* contains less caffeine and only small amounts of theobromine. It is likely that other constituents of the nut contribute to the euphoric and "narcotic" effects.

Louis Lewin reports that animal studies indicate that kola is a more effective energizer than pure caffeine, yet concludes that it is the caffeine that is principally responsible for the activity.



COLA NITIDA, STARKS, 1981

Kola nuts used to be favorites of Alpine mountaineers, it being said that they increased muscular strength without undue mental stimulation. Today mountaineers more often take chocolate-covered coffee beans.

How Taken Chewed. And like betel, the red juice stains the teeth.

Effects

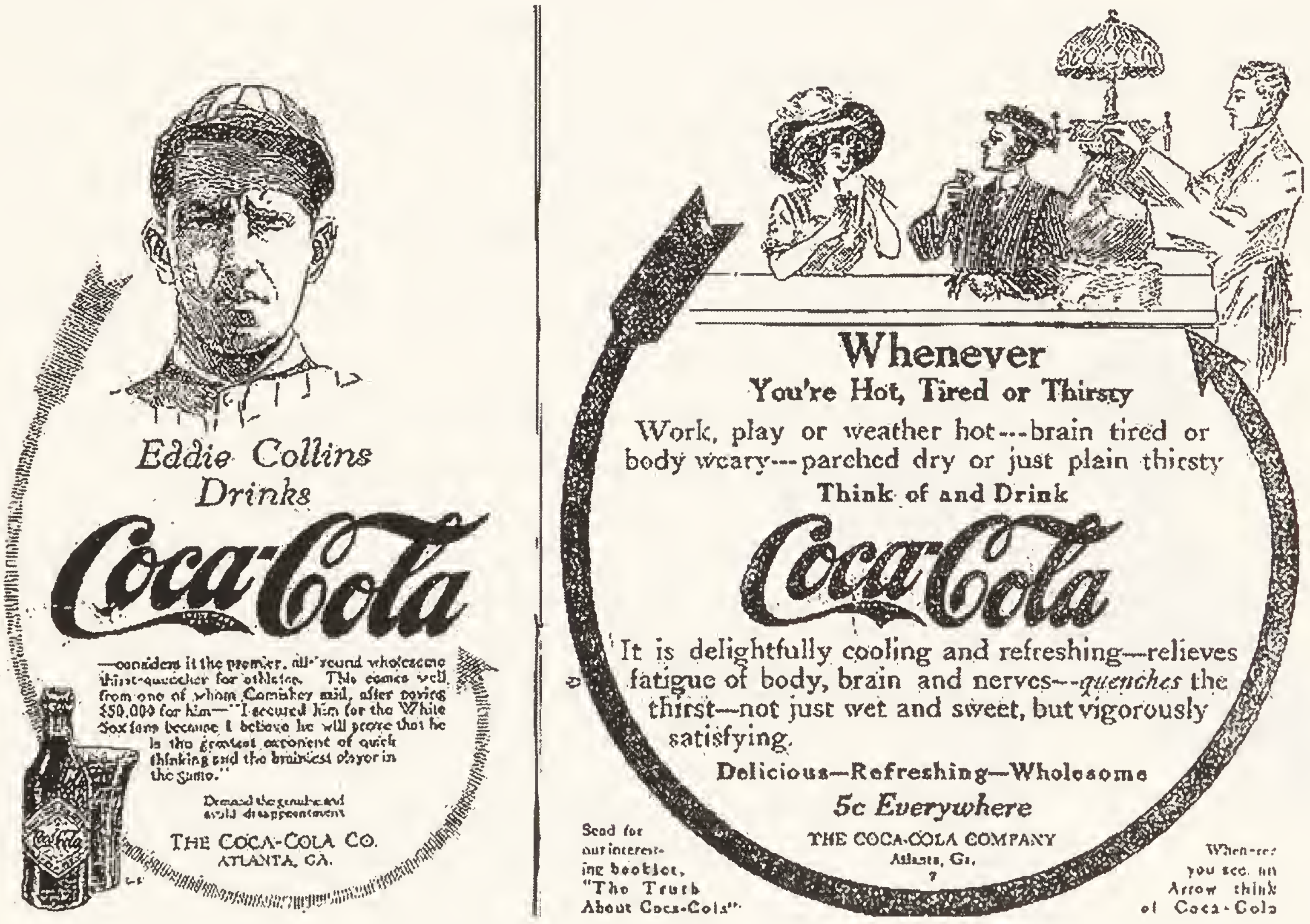
It is better for your life, so my people tell me.
It prolongs your life, for the chewer has said it.
After prolonging your life, you get the blessing of
health for the body and then wealth.
Afterwards, you would never enter hell;
But have all the goodness of Paradise forever.

—*The Book of Kola, Kitab fawa-idul*

The Plant Kola is called "the coffee of the Sudan." There are numerous species of *Cola,* but *Cola nitida* is the preferred source of the prized nuts, with *Cola acuminata* the second choice. Kola nut was one of the original ingredients, in 1886, of that imaginative and remarkable herbal preparation called Coca-Cola. The bitter taste of the nuts along with the slightly anaesthetizing properties of the coca probably made a very tasty combination. Today Coca-Cola contains only such token quantities of its two namesakes as the company's lawyers feel are necessary to protect the trademarked name of their product. Calculating from the most believable of the several purported "recipes" from industry journals and the internet, there is probably about one six-thousandth of a kola nut in an eight ounce serving of Coca Cola (and about one milligram of decocainized coca leaf). The kola taste is simulated with citrus oils, cassia, and a trace of neroli, and by adding U.S.P. caffeine (pharmaceutical grade, United States Pharmacopoeia).

I used kola nut extract in my "Osceola Creme Cola," which was an excellent herbal soda. I could use some right now. I've heard that kola is still the basis of Wellcome's Forced March Tabloid, available in Great Britain.

The nuts have been harvested and traded around West Africa and the Sudan for at least a millennium. Cultivation of the tree spread gradually eastwards from the mountains of Sierra Leone and Liberia to the Volta and finally into Nigeria. Muslim traders from Mali monopolized distribution early in the fourteenth century and helped spread the nuts to the western Sudan and even into North Africa. The Portuguese arrived in the fifteenth century and traded kola nuts along the west African coast. In the interior, kola nuts moved by camel caravan.



Eddie Collins
Drinks
Coca-Cola

—considers it the premier, all-round wholesome thirst-quencher for athletes. This comes well from one of whom Comiskey said, after paying $50,000 for him—"I secured him for the White Sox fans because I believe he will prove that he is the greatest exponent of quick thinking and the brainiest player in the game."

Demand the genuine and avoid disappointment

THE COCA-COLA CO.
ATLANTA, GA.

Whenever
You're Hot, Tired or Thirsty
Work, play or weather hot---brain tired or body weary---parched dry or just plain thirsty
Think of and Drink
Coca-Cola

It is delightfully cooling and refreshing—relieves fatigue of body, brain and nerves---*quenches* the thirst—not just wet and sweet, but vigorously satisfying.

Delicious—Refreshing—Wholesome
5c Everywhere

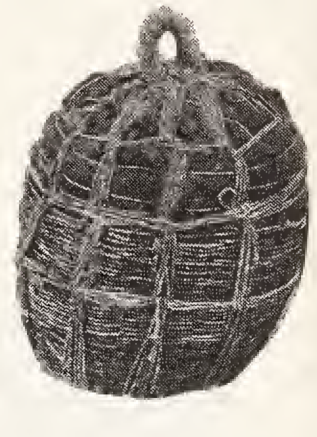
THE COCA-COLA COMPANY
Atlanta, Ga.

Send for our interesting booklet, "The Truth About Coca-Cola"

Whenever you see an Arrow think of Coca-Cola

COCA-COLA AD, C. 1915

A dose of kola is less than one nut, so the nuts are usually split and shared, reinforcing the social aspect of kola chewing. Throughout their history kola nuts have been expensive items of prestige, and there are parables and warnings of how a kola nut habit can impoverish a family.



AFRICAN KOLA NUT BASKET

The Ally

Kola, tree of Gonja.
Worth great sums of money,
The product of Asante,
Anyone who becomes addicted to you
Will never stop paying money.
Anyone who trades in you
Will stumble and fall
Until he dies in destitution.

—an African poet on pilgrimage to Mecca, 1911

Signatures

The Hausa peoples claim that kola is an aphrodisiac for women and a specific for erectile dysfunction in men. Kola was also said to make one wiser, to protect one against sorcery, to improve self discipline, and to have the power to cure a broken heart,

We accept kola as a gift even if only a piece.
The two good halves are very special indeed.
As for the pieces, they are more than sufficient,
For he who gives either is of high standing
and will be rewarded.

—Imam Imoru, "Kitabul Mas-alati Tanbul"

Kola, or "goro," is so associated with business and social exchanges that a secondary meaning of *goro* is "bribe."

The Igbo in Nigeria celebrated the new millennium with a shrine decked with white cloth and bowls of kola nuts and white chalk, and of course drumming and dancing. Thirteen different towns in the Imo River area rotate the hosting of New Year festivities. The Igbo have a saying: "The Yoruba produce kola, the Hausa chew it, and the Igbo celebrate it."

Kola nuts are important traditional ceremonial gifts, especially at rites of passage such as birthdays, marriages, and funerals. When a Nigerian friend of mine wanted to marry his mother (it's a long story—this was to save her from her second husband and to bring her back into his father's clan), he brought gifts of palm wine and a kola nut on his mission to make arrangements with the family involved.

Slightly sweet, overtones of lime,
A pleasing bitter, to soften the time.

ARECA CATECHU
PIPER BETLE

Common name Betel.

"betel" < Portuguese "betle" < Malayam "vittila."

Hindi *Pan,* mainly refers to the leaf. The areca nut is *supari*. Thus the quid is *pan-supari. Seroti,* also Hindi, refers to the betel cutter.

In Thai the betel leaf is *plu* and the areca nut is *mak*. In Sinhala, the leaf is *bulat,* and the nut is *puvak.* In Malay and Bahasa Indonesia, the leaf is *sirih,* and the nut is *pinang,* which word was borrowed into Chinese as *pin-lang.*

Taxonomy Betel is the leaf of *Piper betle,* a creeper of the pepper family. Black pepper, *Piper nigrum,* and kava, *Piper methysticum,* are in the same genus. *Areca* is a palm tree.

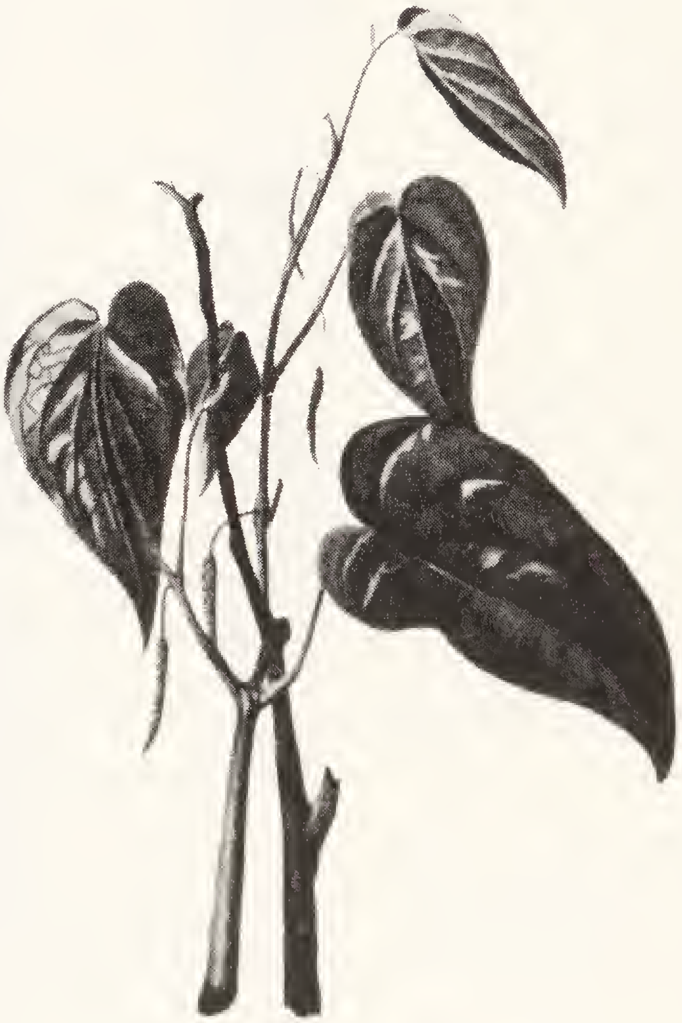
Part Used Betel quids are composed of two plants, *Areca catechu* and *Piper betle.* The nut of the betel palm is chopped into small pieces and, along with lime paste and spices, folded up into a triangular packet in a fresh *Piper betle* leaf. The packet is chewed and kept in the cheeks or behind the lips.

Effects Gives energy, assuages hunger, eases pain. Accordig to Sanskrit texts, betel is pungent, bitter, sweet, spicy, and salty. It expels wind, kills worms, removes phlegm, subdues bad breath, induces passion, and beautifies the mouth.

As much as black teeth are beautiful.

The Plant The oldest archaeological evidence for betel use in northwest Thailand, where traces of both *Piper betle* and *Areca* have been uncovered in a cave at levels dated between 7000 and 5500 BCE. Conforming to the pattern that been gradually emerging from so many plants in both this book and *Pharmako/Poeia*, once again it seems that the drug plant was cultivated before the food plant.

Duh!



PIPER BETLE,
STARKS, 1981

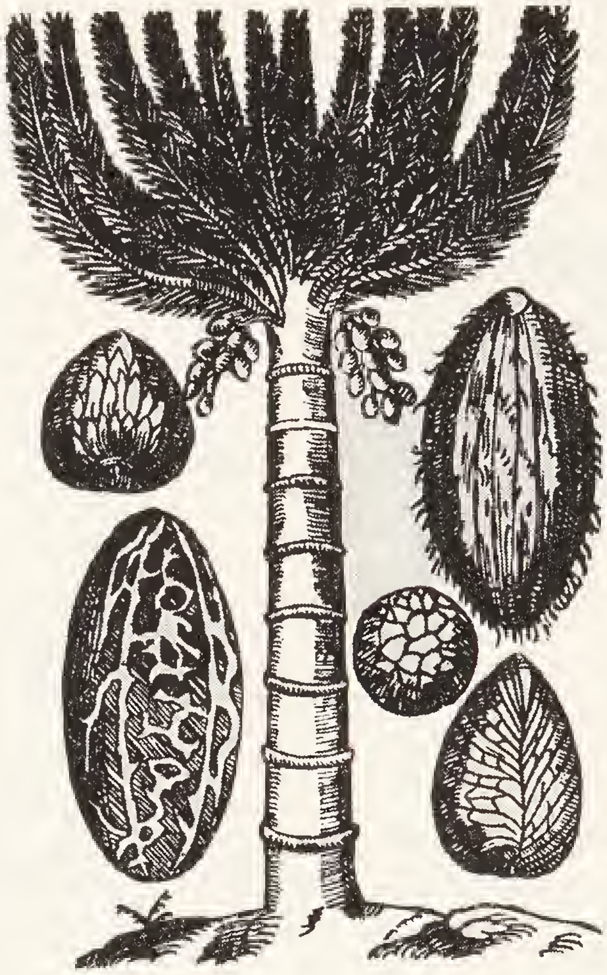
Other early sites are in the Philippines and in Timor. It seems likely that betel originated in Southeast Asia and spread from there to India and southern China.

Effects

Salivation. First-time users often swallow the juice and get dizzy.

History

> *A Vietnamese story tells of two twin brothers, Tan and Lang. They looked so similar that no one could tell them apart. A wise elder served them a single bowl of rice, and when Tan ate first, the Elder knew that he was the first-born, and married him to his daughter. Lang was so lonely without his brother that he took to wandering, until one day he died on the bank of a river and was transformed into the areca palm.*



JACOBIUS, ARECA PALM, 1613

Effects

Louis Lewin called betel "a mild excitant with narcotic and stimulating qualities." Though he seems to have a low opinion of the chewing habit, he considered betel safer than tobacco or alcohol, and acknowledged that that habit was ideally suited to the tropical regions where it is common, both protecting the chewers from parasites and providing important nutritional nitrogen, otherwise mostly absent in the native diet.

Lewin estimated the number of betel users to be around 200 million in 1930. It is undoubtedly larger today.

The Ally

Bloody Mary's chewing betel nut
And ain't that too damn bad.

The Plant

Chewing betel turns the saliva bright red, and eventually stains the teeth black. In former times this was regarded as a mark of distinction. While betel is traditionally said to sweeten the breath, many reports cite just the opposite condition—a fetid odor perhaps caused by rotting bits of quid stuck between the teeth and never cleaned out.

History

> *Tan searched everywhere for his missing brother. One day, on the bank of a river, he slipped and struck his head on a tree that was growing there. He died and was changed into a boulder of limestone.*

Chemistry

Areca nuts contain the alkaloids arecoline, arecaine, arecaidine, arecolidine, guvacine, and others. Betel leaves contain chavibetol, chavicol, cadinene, and a host of other compounds. According to Duke (1985), the oils from the leaf are antioxidant and antiseptic.

Effects Betel chewing is widely blamed for plaque buildup, gum disease and dental caries. This, however, has been contested by some local dentists in Southeast Asia.

Betel chewing is also associated with a highly elevated risk of mouth or esophagal cancer. It is not clear how much of this correlation is due to the tobacco which is now commonly added to the quid.

History

> *Tan's wife listened and waited for any news of her husband and brother-in-law. Finally she heard that they had both died by the edge of a river. She went to the place and lay down in grief on a large rock she found there. She was so lonely that she died and was changed into the betle creeper, draped over the rock and clasping around the tree.*

Poesis Some skill is required to fold a good quid. Ingredients vary widely. It is vital that the leaf, at least, be fresh. I had made several attempts on my own, just with chopped nut, a packaged leaf, and a little lime. It was awful. What a difference when I finally got a ready-made. Full of spices and honey, the leaf fresh and fragrant, the nut slices soft. And the effects were trebled. I think the euphoric part comes from the leaf, and the stimulating part from the nut.

BETEL POUNDERS

The Plant

On Taiwan, the prevalence of betel palm plantations on steeply sloping hills has created a significant erosion problem. The Taiwanese government instituted a program to buy out the farmers with plantations on slopes of more than 30 degrees, but have had limited success due to the highly lucrative value of the crop, where the price of a single betel nut is the same as a dozen eggs. Officials estimated that nearly 20% of the 57,000 hectares of betel plantations on Taiwan are on such slopes.

History

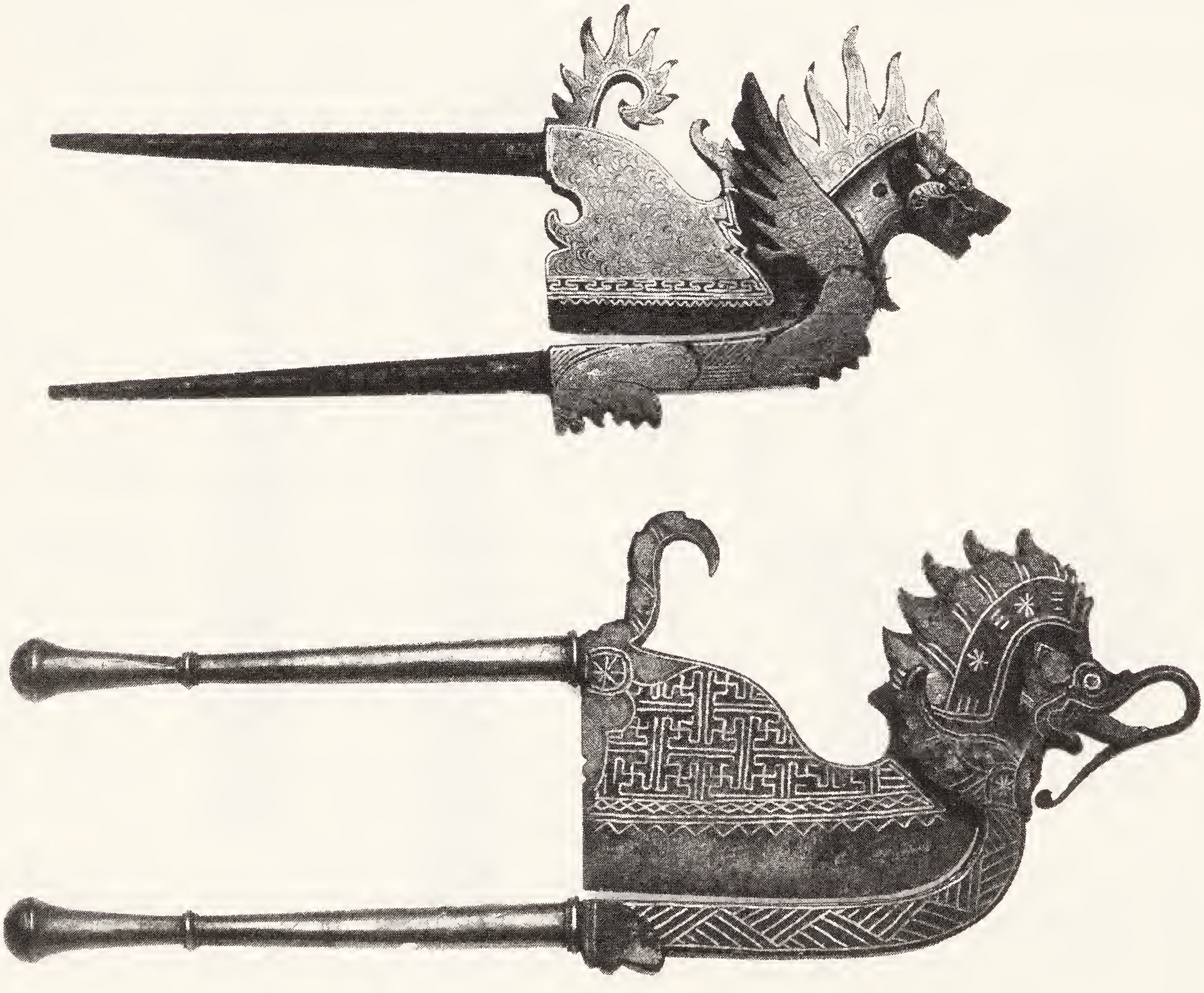
When the villagers came to the riverbank, they tried chewing the leaf and nut that were growing there. When they spat on the rock and it turned blood red, they said that the red color was from the power of the love that had brought them all there.

The Ally

How can so many hundreds of millions of people be addicted to something that does so little?

That's not fair. It's an acquired taste. I like it for gardening, so it's easy to spit.

Yeah, but you only chew one quid. A real betel chewer can go through three dozen in a day.



BETEL CUTTERS

Effects

A study in Palau, reported in the British Journal of Psychiatry, found that betel chewing was beneficial in reducing the symptoms of schizophrenics. Betel chewing was also correlated with less use of other drugs, especially cigarettes.

Poesis

The paraphernalia associated with betel chewing are extraordinarily beautiful. The most striking are the cutters. These are hinged devices much like nutcrackers, with a short blade mounted near the fulcrum, used to cut up the areca nuts. Cutters, often of silver or brass, or of steel with gold and silver overlay work, are cast into a wide variety of forms, including reclining goddesses and dakinis, stags, chickens and other birds, and mythological figures such as garudas.

In addition to the cutters, there are brass containers to hold the leaves, smaller containers for the lime, boxes for the nuts, trays for serving the quids, tiny mortars for chopping the ingredients still further, and, not least, spittoons.

In many parts of Southeast Asia, it is customary for one to always carry his own lime, while serving the other ingredients is a mark of ceremonial hospitality. In Malaysia, betel serves a traditional role in courtship and marriage rituals. When the family of a prospective groom visit the family of the intended, the two families chew betel and speak of other matters until the actual purpose of the visit is clear. At this point, if the betel container is accidentally overturned, it is a sign to the visitors that the matter should not be pursued. Similarly, on the wedding night, a betel container is left outside the door of the marriage chamber. If it is overturned in the morning, it means that all did not go well and that an annulment, along with a great deal of trouble and ill will between the families, may be unavoidable.

In India betel has a prominent role in many marriage ceremonies, and the finest set of containers, trays, and cutters are set beside the marriage bed.

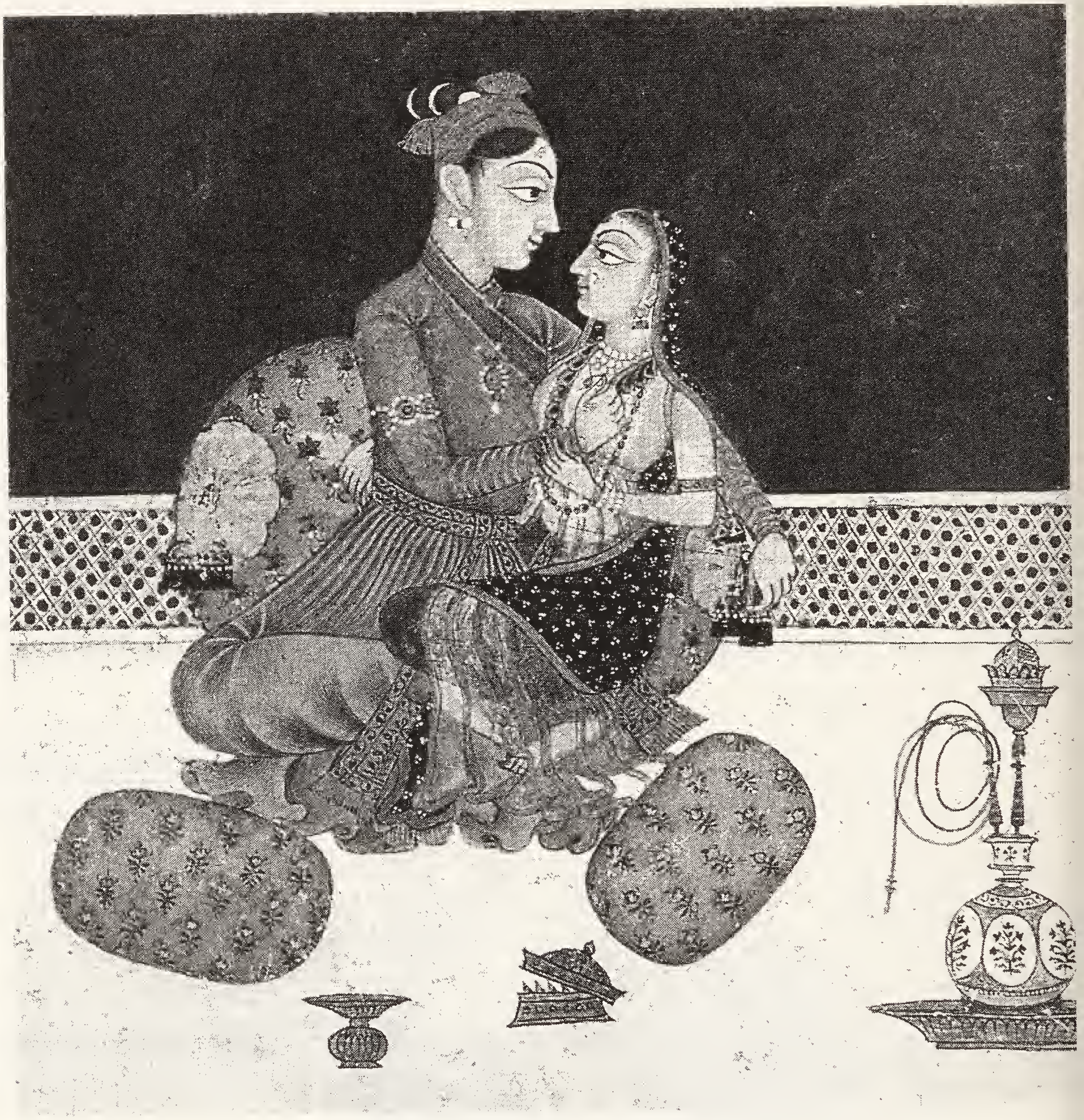
Class

Charismatica. That which makes you feel empowered, centered, and important, by yourself and others.

The Ally

He took and tasted, a new life
flowed through his renovated frame;
His limbs, that late were sore and stiff,
Felt all the freshness of repose;
His dizzy brain was calmed,
The heavy aching of his lids
At once was taken off;
For Laila, from the bowers of Paradise,
Had borne the healing fruit.

—*Thalaba*



LOVERS EQUIPPED WITH SPITTOON, PANDAN (BETEL BOX), AND HUQQA (WATER PIPE), BILASPUR, ABOUT 1730–1740

HECATE'S GARDEN

Love and strife, Empedocles said. An ivory canine, or the peacock's tail: natural selection and sexual selection. Hecate's enchanted garden. She who birthed the vine, *Trioditis:*

the meeting of three roads.

Angel messengers, terpenes and alkaloids, serotonin receptors on platelets, like olfactory sensing on protozoa. Pheromones. Salts and oils.

Smell is the first of the senses.

Some messages get misdelivered, the names of the addressees spelt so similarly.

Come close. Stay away. I love you. Eat me and die.

And the primal atmosphere, likewise internalized. Nitric oxide in the synapse, enemy nerve gas coopted, given a work permit in a Precambrian armistice and employed.

The nervous system is distributed, thousands of receptor types, hundreds of thousands of mediating chemicals.

Love and strife, angels terrible and sweet.

Some messages are like interoffice memos, acetylcholine between cells. Others are transmissions from the Foreign Office, tannins, meant for other species. Jasmonic acid. Some messages are false: disinformation created to confuse and subvert. Protease inhibitors. Some are love letters to other life forms, or imperialistic saber-rattling, like a phylum-wide Monroe Doctrine.

Plants to animals, or interactions with the environment. Carbohydrates oxidizing. Secretions of GABA.

It's NOT all in your head.

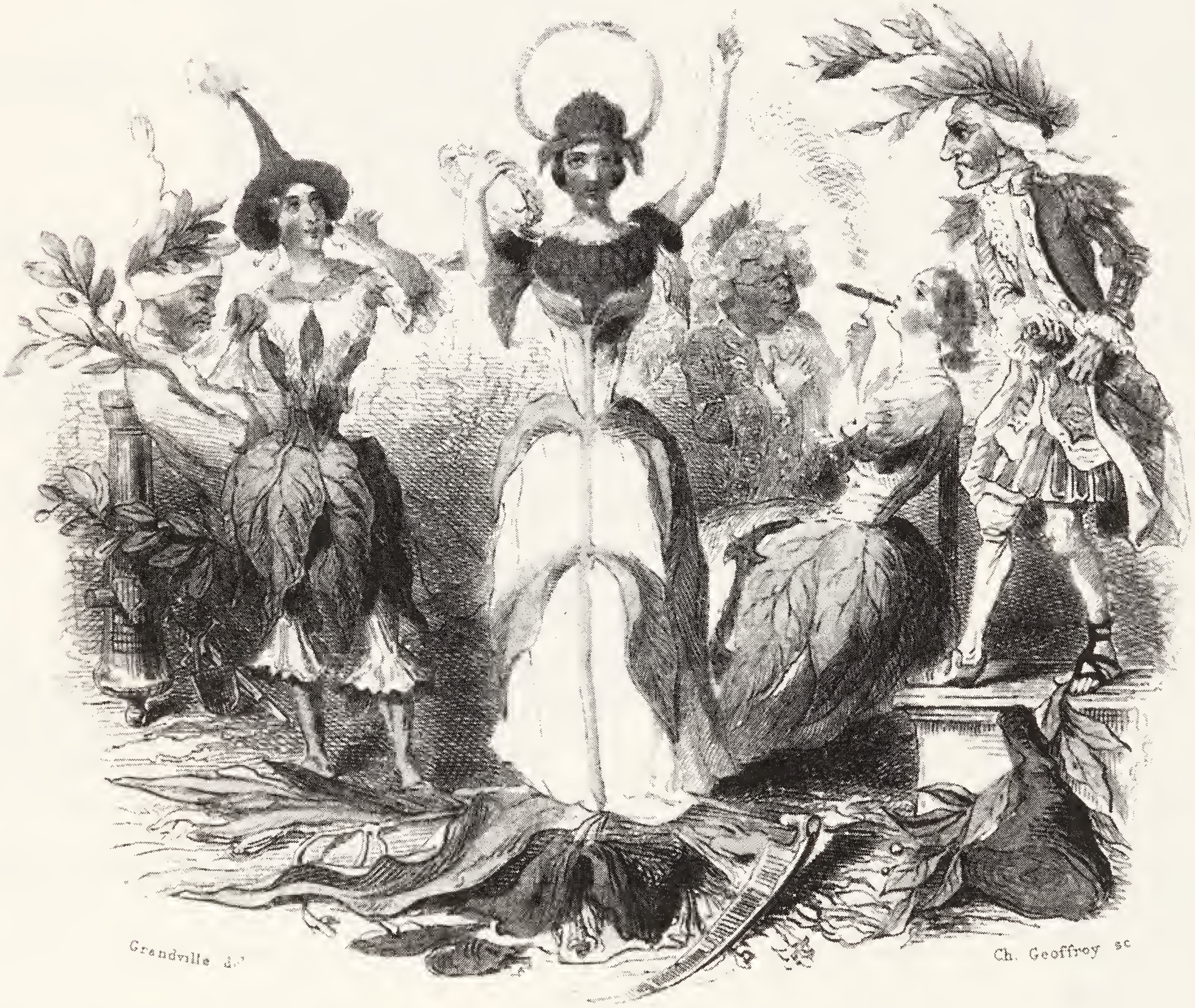
The "brain" in that jar of formaldehyde is not all there—look closely and you will see that it has been severed.

The real brain extends to fingertips, to genital surfaces, across synapses, through capillaries, veins, neuroreceptors lining the gut, covering platelets, carried by messengers through skin pores. Or inhaled, or ingested, or excreted.

Winds and ocean currents are intersynaptic fluids.

This, your own brain, buzzing with state transitions, energy captured through electron transport chains in green chloroplasts, from photons radiated, ninety-three million miles away in a great star, itself interacting and resonating with cosmic fields and galaxies.

& that's just the brain,
laughs the Mind.

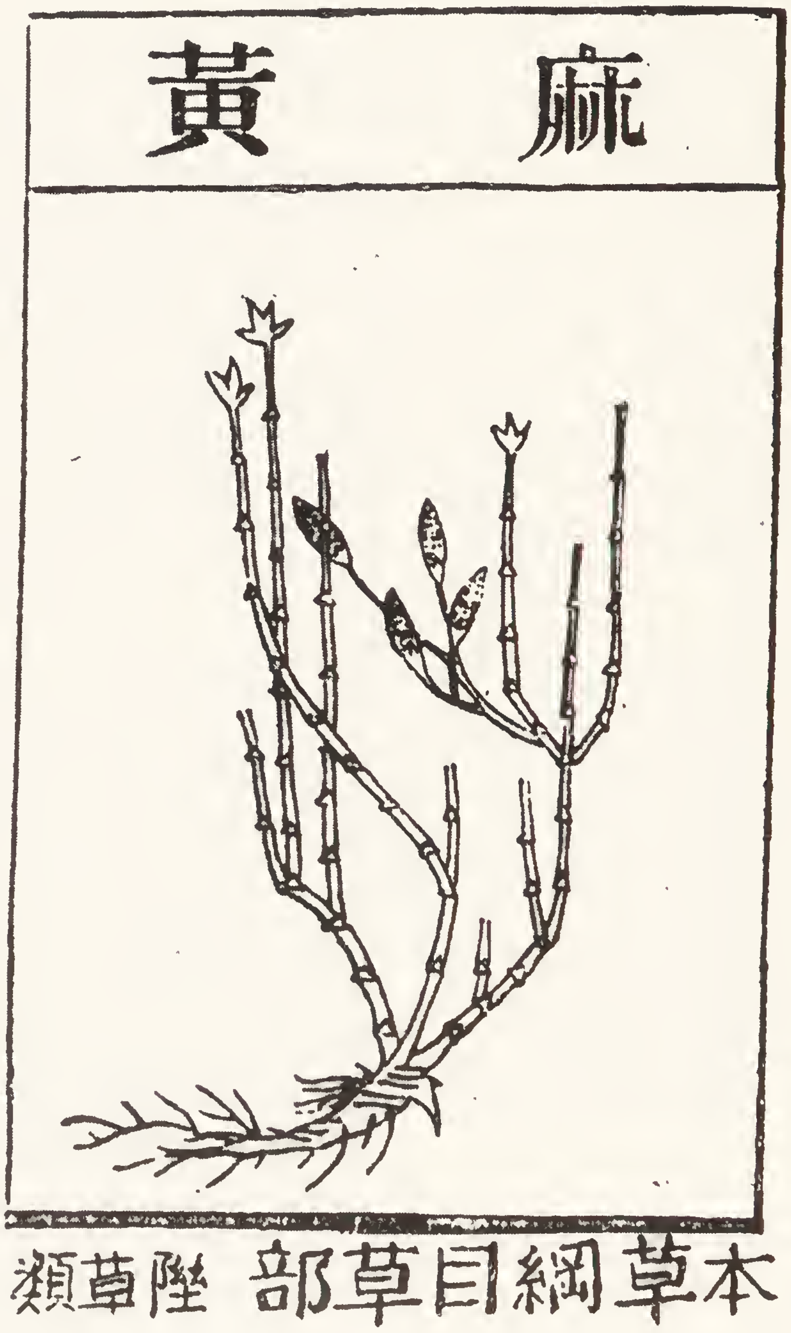


FROM J.J. GRANDVILLE, LES FLEURS ANIMÉES, 1847

EPHEDRA SINICA

Common names Ma huang (literally, "yellow hemp"). Joint fir. Mormon tea.

Related species *Ephedra vulgaris,* and *E. equisetina* are two other important Asian species. *E. equisetina* is the major natural source of ephedrine. *Ephedra nevadensis, E. californica, E. viridis, E. funerea, E. trifurca,* and *E. fasciculata* all grow in arid regions of western North America. These are all loosely called "Mormon Tea," or Popotillo. *E. nevadensis* is reported to contain little or no ephedrine. However, as the alkaloid content of *Ephedra* species vary considerably by season, being highest in the fall, I'm not sure the reported phytochemistry is definitive. At least one (unidentified) California species tested on the trail by bioassay contains palpable quantities of alkaloid. Thirty-three other species are found in South America, the Mediterranean, and Asia.

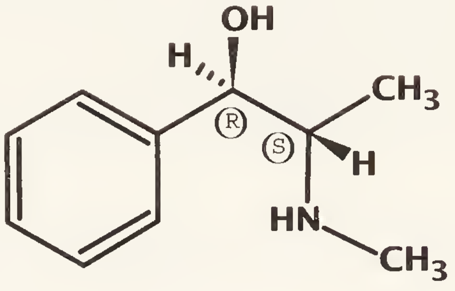


PEN T'SAO KANG MU WOODCUT

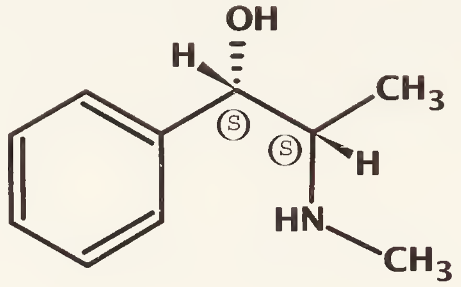
Taxonomy *Ephedra* is more closely related to pine trees than to the vascular plants. *Ephedra* is dioecious, the male fruit is a tiny cone, the female fruit is a berry enveloped by bracts.

Part Used The whole plant, steeped briefly into a golden medicinal tea for asthma, colds, or hay fever, or steeped longer for the stimulating effects. Or the extracted alkaloid, as a pill. Or the synthesized alkaloid.

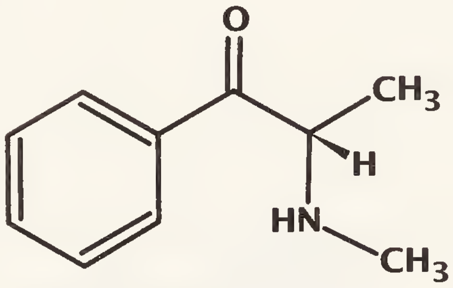
Chemistry Both ma huang (*Ephedra sinica*) and *E. equisetina* contain high levels of ephedrine—up to three percent—as well as some pseudoephedrine. Several Central Asian species (*E. intermedia, E. distachya, E. procera*) contain lesser amounts of ephedrine, around 0.5 to 2.2 percent. Pseudoephedrine is not really "false" ephedrine, it's an isomer. Ephedrine has two chiral centers: therefore, there are four possible isomers. The two naturally occurring isomers are *l*-ephedrine (1R,2S), and *d*-pseudoephedrine (1S,2S), where the



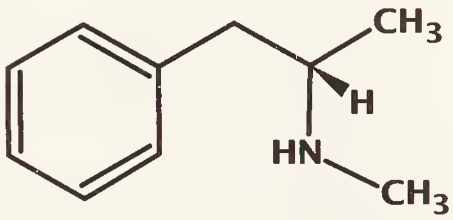
(1R,2S)-(-)-ephedrine



(1S,2S)-(+)-pseudoephedrine



(S)-(-)-methcathinone



(S)-(+)-methamphetamine

+ indicates dextrorotatory, and the -, in this case, levorotatory. Note that these are two distinct molecules: they are diasteriomers, not enantiomers (mirror images), and have different chemical properties. The enantiomer of *l*-ephedrine would be *d*-(1S,2R)-ephedrine (not shown). As a mirror image of *l*-ephedrine, *d*-ephedrine would have exactly the same melting point as *l*-ephedrine, and mostly the same chemical properties (though racemic ephedrine has a different melting point). Their biological properties, however, are not the same: the naturally occurring isomers are more active. Pseudoephedrine is much less potent as a CNS stimulant than ephedrine, and is used mostly as a nasal decongestant and as a base for synthesizing methamphetamine.

Effects Truckers like ephedrine (when they can't get amphetamine). Unlike caffeine, ephedrine is not diuretic.

Pharmacology Ephedrine stimulates both the central nervous system and the sympathetic nervous system. It is an adrenergic agonist, and stimulates the release of norepinephrine. There are two types of adrenergic receptors, alpha and beta, and several sub-types. α-Adrenergic agonists affect the smooth muscles. They stimulate local vaso-constriction, reduce nasal congestion, increase vascular resistance, and, generally, raise blood pressure. The smooth muscle stimulation and concomitant vaso-constriction can induce a marked resistance to urine flow and the ability to reverse priapism, erection being a relaxation event. α-1 agonists work by mimicking norepinephrine. α-2 agonists modulate the presynaptic release of norepinephrine and epinephrine and are useful for hypotension.

β-Adrenergic agonists promote pulmonary bronchodilation, thus increasing air flow for flight or fight situations. β-1 agonists stimulate the heart, an effect that is increased by the presence on an MAOI (monoamine oxidase inhibitor). β-2 agonists particularly affect pulmonary muscles, thus their usefulness for relieving asthma, but can affect the skeletal smooth muscles generally and hence can cause tremors. Ephedrine is a weak α-agonist and a medium agonist of β-1 and β-2 receptors. For comparison, cocaine is a weak β-1 and β-2 agonist and a medium α-agonist. Amphetamine is a strong agonist of all three types.

Thus, ephedrine stimulates the heartbeat and cardiac output, variably increases peripheral resistance, and usually increases blood pressure—though, because of the complexity of the feedback loops in the cardiac/vascular system, the opposite can happen. The half-life of ephedrine is three to six hours. It is excreted mostly unmetabolized.

Becuase it is a "warming" herb, Chinese herbalists usually do not give *Ephedra* for summer colds, nor for bronchitis accompanied by thick, yellow mucus. Herbalists sometimes mix *Ephedra* with a cooling herb, to counteract its warming quality. Other contraindications for ephedrine or ma huang are high blood pressure, nervousness, anxiety, insomnia, and, especially, any history of cardiac arrhythmias. Ephedrine is also contraindicated for persons with diabetes, thyroid trouble, or enlarged prostate.

> *"People who have heart disease, high blood pressure, diabetes or thyroid trouble or difficulty in urination due to enlarged prostate gland should take this preparation only on the advice of a physician,"* the package says.

Nor should *Ephedra* be combined with MAOIs (however, see below for the relevance of just this combination in the *soma/haoma* discussion). Tests combining ephedrine with moclobemide, a reversible monoamine oxidase-A inhibitor, found a two to four-fold potentiation of ephedrine's effect on blood pressure, and a 0.6 potentiation of ephedrine's effect on heart rate. The most common adverse reactions were palpitations and headache. Interestingly, similar results were found for tyramine and moclobemide.

Combining moclobemide with SSRIs such as fluoxetine did not produce any indication of serotoninergic syndrome. As harmine and harmaline are also reversible MAO-A inhibitors, it is reasonable to expect similar results with either of these two alkaloids. Generally, it is MAO-B inhibitors that affect phenethylamines, while MAO-A inhibitors affect tryptamines. It is known, however, that MAO-A is involved with epinephrine—even though a catecholamine is basically a phenethylamine. Since tyramine is also a phenethylamine, other potentiations of certain phenethylamines by MAO-A inhibitors are to be expected, even if the general rule that MAOIs do not potentiate peripheral sympathetic stimulation holds.

Ephedrine and caffeine mutually potentiate one another's amphetamine-like stimulus effects.

How Taken As a hot tea, or as a ritual beverage with milk and a sacrifice. The tea is made from one-half to one teaspoon of herb per cup. As a decongestant, only steep the herb until the tea is a golden yellow. For a stimulant, steep the herb longer. Good ma huang tea has a sweet, faintly resinous scent. A cup of ma huang tea will contain ten to fifty milligrams of ephedrine alkaloids, depending on how long it is steeped. As a reference, over-the-counter asthma preparations such as Primatene®, contain around 50 mg. of ephedrine in an adult dose.

Effects I find that the CNS effects are discernible in even very small doses—before the body-load kicks in. A friend reports that he prefers *Ephedra* over coffee for writing, that he is less jittery than on caffeine, and that the come-down is gentler.

Many report that *Ephedra* is an aphrodisiac.

Nooners. Or afternooners.
Spontaneously imagined scenes . . .
Suburban sin,
or an after-hours quickie.

A woman liked the way it made her nipples hard. Men, using a pencil metaphor, say that *Ephedra* "gives good lead." A double-blind study by Meston and Heiman (1998), using both subjective reports and "vaginal photoplethysmography" found that fifty milligrams of ephedrine sulfate "significantly facilitated" physiological sexual arousal in women, and stated that ephedrine might have value in the management of female sexual dysfunction.

DETAIL FROM MAX ERNST, UNE SEMAINE DE BONTÉ, 1934

The Plant *Ephedra* is called "joint fir." The family is monogeneric, and evidently of ancient lineage, as their distribution in the Old and New Worlds is fairly uniform. The stems are jointed, and bear a superficial resemblance to horsetail. The leaves are reduced to bracts at the joints, so, in general appearance, *Ephedra* is a leafless plant. Most of the North American species are desert shrubs. In Asia, several of the ephedrine-rich species grow in high mountains. Most *Ephedras* are much-branched from a thick central stem. Some of the montane species are more like small trees and have a sweet, piney aroma. The berries on the female plants are bright red, and on *E. sinica* are as large as grapes. Traditional Chinese herbalism reports opposite effects from different parts of the plant, the roots and the nodes lacking the warming and stimulating qualities of the internodal stems. The alkaloid content of the plants varies considerably, both seasonally and from ecological factors.

The geographical distribution of Central Asian species of *Ephedra* is summarized by Nyberg (1997). *E. equisetina* is found on high montane slopes in the Caucasus, Dagestan, the Kopet-Dagh in Turkmenistan, and across Central Asia to the Pamirs and the Tien Shan. *E. intermedia* is found in much the same area in the lower montane zone. *E. procera, E. gerardiana,* and *E. intermedia* are found in the Hindu Kush and in Baluchistan. *E. distachya L.* (synonyms are *E. vulgaris, E. monostachya, E. botryoides, E. dubia, E. stenosperma)* grows in the steppes and semidesert areas from the Ukraine, the Southern Urals, and the Caspian Sea to Western Siberia.

> *You're getting very dry, and are using the passive voice.*
> *Have you drunk* soma?

It is the glaucous sheen of the stems that gives this plant to the moon.

The Ally

Between body builders, dieters, asthmatics, stuffed-uppers, truck drivers, and ravers, Americans consume three billion doses of ma huang or ephedrine-based products annually. The DEA and the FDA have pushed restrictive laws, and the health establishment a great deal of newspaper publicity over the dangers of the drug. Some two score deaths are noted, and that ephedrine is an "amphetamine-like stimulant."

History

Ephedra is widely cited as having a five thousand year history in China. The source of this claim is evidently Shên-Nung, who states that *Ephedra* will cure colds, headache, and fever, will produce perspiration, stop coughing, cure chills, and reduce hard swelling. While the dating of Shên-Nung to five thousand years is legendary, prehistoric use of *Ephedra* is well-proven archaeologically, as we shall see, and the Chinese claim might well be true. Ma huang was introduced to Western medicine in the 1920s by Ku Kuei Chen, a pharmacologist at Peking Union Medical College, who had recently completed his doctorate at the University of Wisconsin. Ephedrine quickly replaced epinephrine (adrenaline) as the drug of choice for asthma.

Ephedra may be our most ancient continuously used plant ally. Pollen of *Ephedra altissima,* along with the pollen of five other herbs, has been identified in a 60,000 year old Neanderthal burial site in Iraq, named Shanidar IV. As the other plants identified (species of *Achillea, Muscari, Centaurea, Senecio,* and *Althea*) all have medicinal properties, the finding is highly suggestive that the Neanderthals were plant people. This point is contested, though not vigorously, by Ian Tattersall (1999) who states that the pollen could have been brought into the burial by burrowing rodents, or blown in by the wind. Tattersall points out that grave goods are conspicuously absent in most Neanderthal burials and cites this fact as indicating that the Neanderthals possessed neither symbolic thought nor language, (his conclusion is based on a great deal more evidence than just the burials). But it seems likely that at least one old Neanderthal had accumulated a great deal of herbolgy and was buried with the plants he used to keep himself alive.

Ephedra next emerges in the archaeological record in Chinese Turkestan, west of Dunhuang and the Jade Gate, in the Tarim Basin. Remarkably well preserved mummies have been uncovered at Cherchen, Loulan, and Ürümchi. The mummies date variously to between three and four thousand years old, the oldest dated to 2000 BCE (Barber 1999). The mummies are Caucasoid—tall, large nosed, round eyed, and blond. Elizabeth Barber, an expert on ancient textiles, is able to identify the people as Indo-Europeans by examining the techniques used in their weavings, which are spectacularly and colorfully preserved. In particular, some of the plaids closely resemble those found in Hallstatt graves in Austria (ca. 1200 to 400 BCE), a culture linguistically related both to the Tocharians and to the ancient Celts.

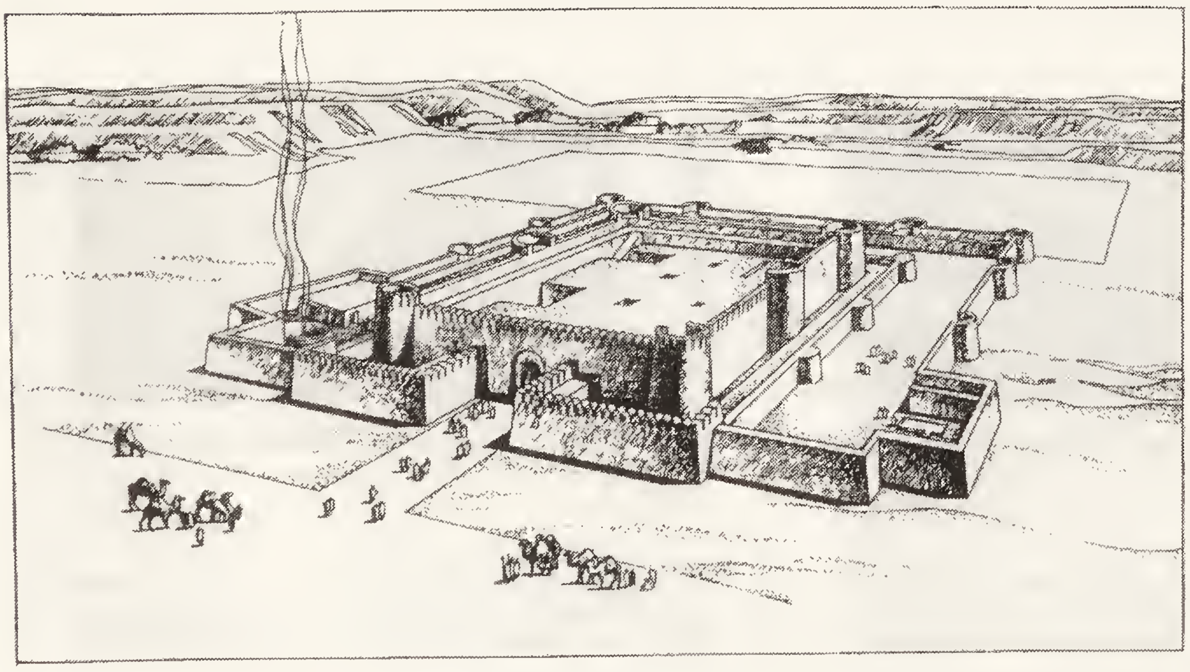
Tocharian is the easternmost branch of the Indo-European language family and is attested in the Tarim Basin by many surviving documents from the third to the ninth century CE, as well as by place names and important loan words in Chinese. Still, the linguistic identity of the mummies cannot be positively known. Barber believes that the Tocharians were the second wave of Indo-European speakers to arrive in the Tarim Basin, arriving at Hami around 1200 BCE, and that the first wave, which arrived around 2000 BCE, spoke some form of Indo-Iranian. For our purposes, what is most remarkable is that the mummies were buried with bundles of *Ephedra* wrapped into their garments. The occurrence of *Ephedra* in the Ürümchi burials suggests that some early Proto-Indo-Iranian people considered *Ephedra* to be a life-bestowing plant.

The Ally

Another cup of hōm,
and dive back into pedestrian ephemerality.

History

Two features dominate a relief map of inner Asia: the massive Himalayan mountain range which resulted from the collision of the Indian subcontinent with the main Asian plate, and a huge elliptical sink called the Takla Makan desert, bounded on the south by the Kunlun range and on the north by the Tien Shan. Clearly, the Takla Makan is the back door to China. The Silk Road. Besides the two caravan paths connecting Kashgar and Loulan around the north and south borders of the Takla Makan, there was a third route, the "north road," that led through the valleys and foothills north of the Tien Shan. Turfan and Ürümchi are both on this route. The northern route would be the preferred route for slow-moving, migratory people with herds of animals. Following the route west, it passes through Tashkent and Samarkand, then on into Bactria and Margiana in Central Asia near the Oxus River and south of the Aral Sea. We can call this route the Ephedra Trail.



KHANATE

Around the end of the third millennium BCE, Bronze Age settlements began appearing around riverine oases of the Murghab Delta

(Margiana) in southern Turkmenistan. By 1900 BCE these settlements had spread to the Oxus Plain (Bactria) in northern Afghanistan. The settlements were based on irrigation and of small size; they were khanates rather than cities, and were spaced at intervals of several kilometers from each other. At some of these settlements there were large, walled, fortified enclosures—some have called them "temples"—ranging from fifty to more than a hundred meters on a side. These enclosures contain other rooms and enclosures, some of which appear to have been used for preparing ritual beverages, and others that housed fire altars. The beverage preparation rooms, washed white with gypsum, contain platforms along the walls with sunk-in vessels and ceramic strainers. The vessels contain residues of *Ephedra,* along with, in some, traces of *Cannabis* and *Papaver.* Viktor Sarianidi, who led the principal excavations of these sites during the Soviet period, has named it the Bactria-Margiana Archaeological Complex, or BMAC. The presence of both a fire altar and a ritual beverage is of course highly suggestive of the soma ceremony of the *Rg Veda* and the haoma ceremony of the *Avesta.* While not everyone concurs with this interpretation of the BMAC (David Flattery, in a personal communication, doubts the connection), there is a great deal of convincing evidence, material, linguistic, and circumstantial, that the BMAC is the earliest evidence of soma drinking. The corollary is that *Ephedra* is the sacred and much fabled *soma/haoma* of the Indo-Iranians and Vedic Indians. The picture, admittedly, is not completely tidy, but neither are the alternatives.

VESSELS SIMILAR TO THIS INNER MONGOLIAN EXAMPLE, C. 2000–1500 BCE—CALLED BY THE CHINESE "LI" STYLE—WERE DESIGNED TO BE PLACED DIRECTLY ON THE FIRE. SUCH VESSELS SPREAD FROM WEST ASIA THROUGHOUT EAST ASIA DURING THE NEOLITHIC PERIOD; THE FLAMELIKE FORMS SEEN HERE REFLECT WEST ASIAN MOTIFS.

There is a lot of evidence to support the *Ephedra* proposal for soma. For one, in some places, *Ephedra gerardiana* is actually identified with the Sanskrit word *soma.* Contemporary soma rituals in southern India use a plant of the milkweed family, *Sarcostemma,* as a substitute for the original soma. *Sarcostemma* closely resembles *Ephedra* morphologically. *Ephedra* grows where the Indo-Europeans lived. *Ephedra* is still used ritually by Zoroastrians in Iran and India. *Ephedra* stalks are greenish-yellow, the *hari* color so frequently attested in the *Rg Veda.* The branching of *Ephedra* fits with soma's description as "thousand boughed" (RV.9.5.10), "much-branched" (AV.10.3-4). The stalks are straight and arrow-like (RV.10.89.5). Wasson's "leafless" arguments all fit *Ephedra.* The tall species of *Ephedra* are pine-scented ("pleasing") and have red berries eaten by birds, again correlating with passages in the sacred texts (AV.10.4, Av.10.11).

More than one hundred plants have been proposed as soma. Most of these proposals lack significant evidence. At this point, besides *Ephedra,* the major contenders are *Peganum harmala* (Flattery & Schwartz, 1989) and *Amanita muscaria*

(Wasson, 1968). These authors, between them, provide adequate arguments against a score of third-rung candidates.

Wasson's proposal that the original soma was *Amanita muscaria* has been critiqued by Flattery, and, more particularly, by Schwartz, in terms of Wasson's etymological arguments. But a few points seem not to have been mentioned, so I'll do a quick review. First off, *Amanita muscaria* is only known to be used by shamanic people, which the Vedic Aryans were not. Wasson himself stated that a crucial argument in his case was that the alkaloids in *Amanita muscaria* are excreted unmetabolized in the urine, and mistakenly states that no other plant has this property (Wasson 1968, ch. 7). Wasson's error here is two-fold. First, there is no conclusive evidence that Vedic priests, past or present, drank urine. Second, ephedrine is excreted unmetabolized in urine just as is muscimol and a number of other alkaloids, including psilocin. Most Vedic scholars, including Wendy Doniger, consider that the verse in question:

> *the swollen men piss down the fluid set in motion*
> —*Rg Veda 9.74.4*

refers to the Maruts, in this case, rain-giving clouds.

Wasson's arguments are brilliant and cogent, but many of them, such as there being no mention of leaves anywhere in the *Rg Veda,* or that soma grows in the mountains, could equally well apply to *Ephedra.* As pointed out by Flattery and Schwartz (1989), many of the soma passages in the RgVeda used by Wasson actually refer to *soma pavamāna,* the liquid extract, and not to the soma plant itself. At other places the poets are describing Soma, the divinity (not that good poetic tropes shouldn't go both ways.) Wasson's insistence that the Sanskrit *hári* never refers to green is not supported by the dictionary nor by any other scholar I've consulted. Lastly, while *Ephedra* is still in use as *haoma* in Iran, and a plausible substitute for *Ephedra, Sarcostemma brevistigma,* is used for soma in south India, there are very few records of contemporary or historical use of *Amanita muscaria* by either the Indians or the Iranians. That should be conclusive.

> *Right. Except for the "mushroom effect."*

And except for disturbing passages such as "Now thou growest of milky whiteness, and now thou growest golden" (Yasna.10.12), which could certainly refer to *Amanita muscaria,* as could the Old Indic *saumya*, meaning "soft," if, as some claim, it is cognate with *soma.*

David Flattery and Martin Schwartz (1989) present persuasive arguments that the original soma is *Peganum harmala.* Flattery works with Iranian texts: the *Avesta* and related Zoroastrian documents. While building a very strong case that harmel (*Peganum harmala*) was **sauma* (his working term for the soma/haoma plant in Proto-Indo-Iranian), he also builds a strong case for *Ephedra.* Specifically, he states that contemporary and historically attested words for *Ephedra,* such as *hōm, hauma,* and *soma* indicate that **sauma* has referred to *Ephedra* since

Proto-Indo-Iranian, before the Indic and Iranian branches split. In spite of the fact that *soma* and its cognates have been terms for *Ephedra* for at least four thousand years, and that *Ephedra* is still drunk every day in Zoroastrian haoma ceremonies, Flattery believes that *Ephedra* was an ancient admixture plant, and that the principal **sauma* plant was *Peganum harmala.* His main argument against *Ephedra* is pharmacological—that the *Ephedra* in the contemporary haoma ceremony produces no intoxication, that there is no use of *Ephedra* in Iranian or Indic folk medicine, and that *Ephedra* is not generally recognized as having psychoative properties.

> *Such, clearly, is not the case in the United States...*

The absence of *Ephedra* (*"hōm")* in Iranian folk medicine is rather interesting, but, if anything, supports the position of *Ephedra* as a most important sacred plant. Why else would such an important and medicinal psychoactive plant *not* be used secularly? *Hōm* juice does have ritual uses apart from the Haoma ceremony. According to S. Mahdihassan (1982), *hōm* juice, called the "chief of medicines," is given to new-born children as their first drink, and, even more significantly, is administered as a last drink to the dying. Mahdihassan connects *haoma* with the Elixir of Immortality. Joseph Needham gives some credence to this theory, stating that the idea of the *Elixir* may have come to China from the west (ultimately, he speculates, from Babylon and the *Epic of Gilgamesh*). Needham, however, believes that the soma elixir was a mushroom. Whether or not China received the idea of an Elixir of Immortality from the West is highly debatable, but regardless of which direction the elixir traveled, the use of *Ephedra* as a plant given to the dying is documented at both ends of the "Ephedra Trail."

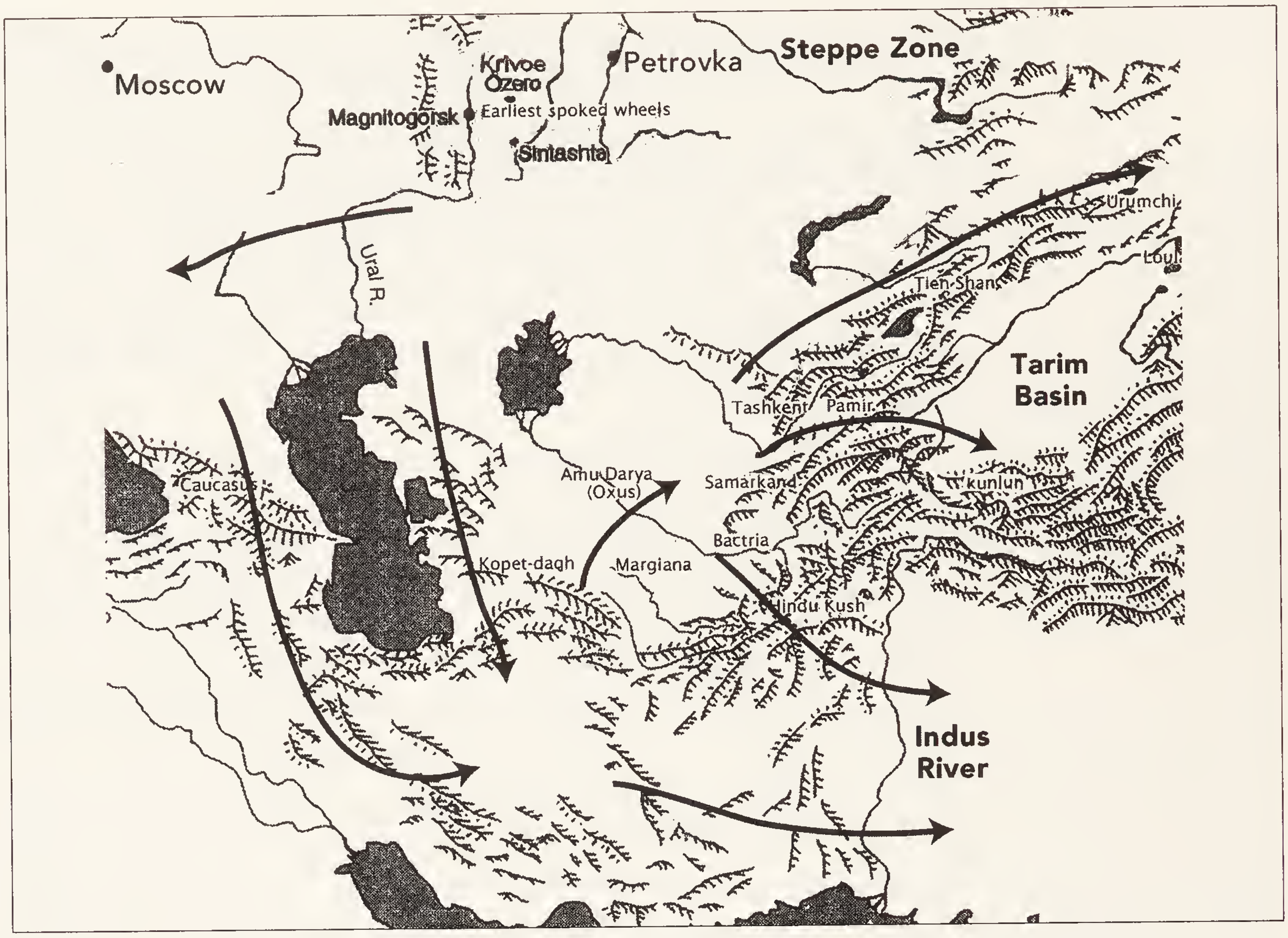
Inflame me like a fire kindled by friction; make us see far;
make us richer, better. For when I am intoxicated with you, Soma,
I think myself rich. Draw near and make us thrive.

—Rg Veda 8:48.6, tr. Wendy Doniger

My main argument for *Ephedra* being the ancient soma is mythopoetic, and is the same argument that Flattery uses against it: pharmacology. If there is one salient point that has emerged from our tour of the *excitantia,* it is that each of these plant allies has generated songs of praise from poets, and that each of them has had, in their history, religious use.

Clarifying Soma, when you are sated with waters
your juice runs through the sieve made of wool.
Polished by the poets, Soma who brings ecstasy,
be sweet for Indra to drink.

—Rg Veda 9:74


Moscow
Krivoe
Ozero
Petrovka
Steppe Zone
Magnitogorsk
Earliest spoked wheels
Sintashta
Urumchi
Loul
Ural R.
Tien-Shan
Tarim
Basin
Tashkent
Pamir
Caucasus
Amu Darya
(Oxus)
Samarkand
kunlun
Bactria
Kopet-dagh
Margiana
Hindu Kush
Indus
River

CENTRAL ASIAN EPHEDRA PATHWAY

The tone of the Vedic songs brings to mind the Nahuatl songs of the Aztecs, which, interestingly, as is examined in the notes to the chocolate chapter, Gordon Wasson could not believe to be inspired by a "mere" stimulant. The case of chocolate is particularly relevant here, but coffee, tea, mate, the black drink, and kola, have all had their mystical and ceremonial traditions. Coca was deified by the Incas. By contrast, we are an excited culture and our stimulating plants are wholly secularized. We are steeped in stimulation and take it for granted.

We have also forgotten the sacred and visionary properties of tobacco.

I have no doubt that given the proper setting and expectation, a strong tea of ma huang would be impressive and salutory—enough to elicit words of praise—especially if one were told that it was a new phenethylamine designed to promote strength, clarity, euphoria, and fellowship, as is promised by many verses in the *Rg Veda.*

I ask of thee, O golden one,
intoxication, power, victory, health,
healing, success, increase, strength
of the whole body.

—Hōm Yašt (Yasna IX:17), tr. Martin Schwartz

7
THE CHARIOT

A global plant mythos begins to emerge: *inebriantia* in the Mediterranean, associated with Dionysus (and, later, Christ); *euphorica* in Old Europe, associated with the goddess; *phantastica* in the New World, associated with shamanism; and *excitantia* in Central Asia, associated with cosmic dualism, Judgment, and, later, yoga. Why should it surprise us that the people who invented the spoked wheel and the chariot would find their god in a stimulant?

Try picturing them
as a motorcycle gang—
we'll call them the "Trinity M. C."—
kind of like "The Wild Bunch"
high on the religion
of speed.

The verses in Book IX of the *Rg Veda* that describe soma as a stimulant far outnumber those that *might* refer to it as a hallucinogen, and the same is true of the *Avesta.* Haoma and soma bring strength, mental clarity, success in battle, and success in business. It is good for the body and can ward off death. Also, clearly, it is available in quantity—cartloads and bundles (for example, *Yasna* 10.17)—which would be unlikely for *Amanita muscaria.*

Flattery presents three Pahlavi texts that speak of a drink that causes sleep and visionary dreams. Flattery connects these texts to haoma. But in two of them what is drunk is a mixture of haoma and *mang,* which Flattery glosses as "strong, psychoactive drug." In the third text the potion is "liquid omniscient wisdom," not clearly just haoma alone. It is quite plausible that the sleep and dream-inducing effects were not from the haoma, but from an admixture plant.

I believe that Flattery is correct that the ancient Magi used *Peganum harmala* (it is still used as incense, both sacrally and secularly), but, while the case is certainly not closed, it seems much more likely that harmel was the admixture to haoma, not the **sauma* plant itself. A mixture of *Peganum harmala,* a potent monoamine oxidase inhibitor, with *Ephedra* would produce a very powerful (and perhaps risky) combination, certainly enough to test the purity and fitness of the priests (if that was the purpose of the ceremony), as would even more certainly, henbane (*Hyoscyamus niger*).

I give you, O righteous, truth-furthering Haoma,
this body which appears to me well-grown,
to rapid Haoma, for intoxication, for well-being, for beatitude.
May you give me, O righteous, death-destroying Haoma,
the best existence of the righteous, light, all bliss.

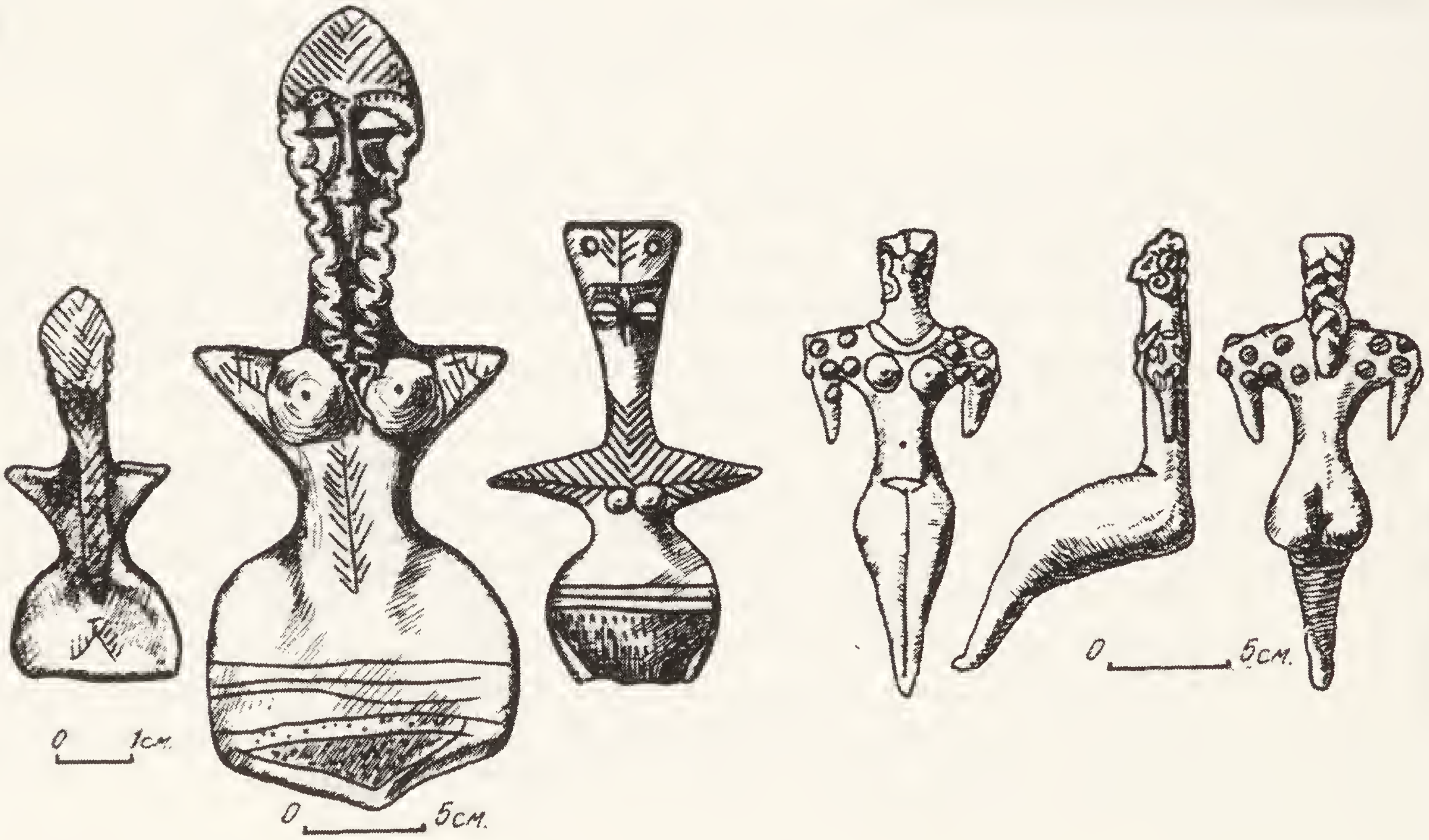
—*Hōm Yašt (Yasna XI:10), tr. Judith Josephson*

I think we have all been fooled, as was Wasson, by thinking that soma, a sacred plant given great reverence, must therefore be a hallucinogen. It is because we are so surrounded by soma that none of us ("us" being those convinced that soma is a psychotropic plant) were ready to consider that soma might be a "mere" stimulant.

The Image

The powers of Light and Darkness are fighting it out in the Spirit World. The battle could go either way, the contestants are evenly matched. We can help from our side of the Veil, even if only a little.

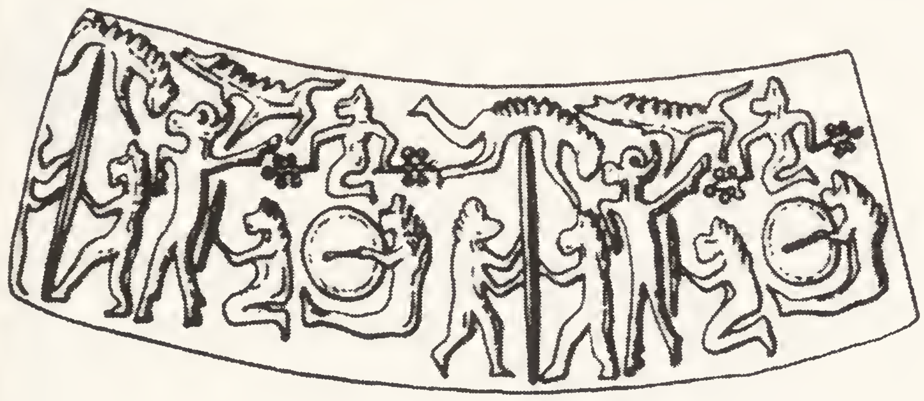
How better to combat the powers of darkness than to keep vigil, to stay awake the whole night, to keep a light burning, to chant songs and hymns of encouragement until the triumphant sun reappears with the dawn. And then to enjoy that special giddiness of having been up all night, of drinking yet more soma to extend the wakefulness into the day. That, indeed, is joy.



SOUTHERN TURKMENIA, TERRACOTTA FIGURINES

History

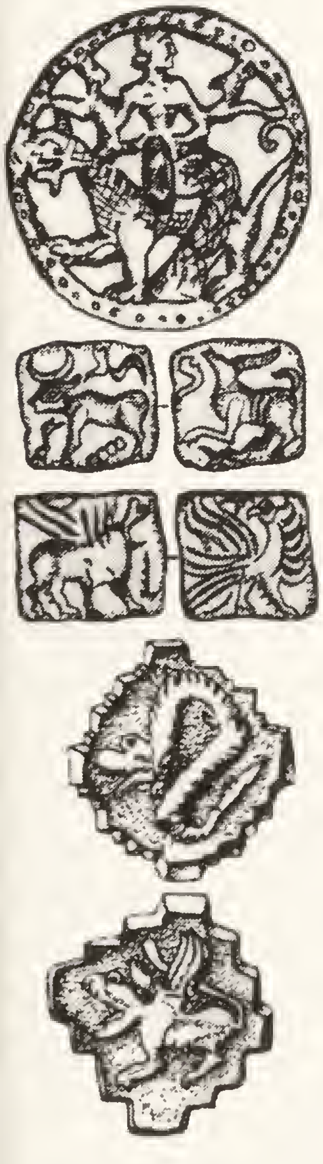
The early material culture (2200 to 1900 BCE, or thereabouts) of the Bactria-Margiana Archaeological Complex included many female figurines and even a bull's head that could have been at home in Mycenae. Stylistically, the artifacts are closelly linked with the Kopet Dagh foothill culture of southern Turkmenistan. The Kopet Dagh mountains form the north border of the western Iranian Plateau and run northwest to the Caspian Sea. It seems likely that the original inhabitants of the BMAC came from Neolithic settlements along the northeastern foothills of the Kopet Dagh. These towns practiced irrigation, but were in crisis because of overpopulation, a general warming and drying period that spread over all of Central and South Asia, or both. It is thought that groups of these people ventured out across the Kara Kum, the "Black Sand Desert," to the Murgab River and the Amu-darya (the Oxus).



MARGIAN CYLINDER-SEAL
REPRESENTING A SHAMANIC RITUAL

Shortly after 2000 BCE the Margiana oasis settlements began developing their own distinctive cultural styles, particularly in ritual objects. Notably, the violin-shaped terracotta goddess figurines completely disappear. Females begin appearing in more narrative scenes, in relation to men and animals (often fabulous), rather than alone. Winged animals appear. While the Oxus settlements surely had contact with the Harappan culture to the southwest and to the Andronovo culture to the north, these changes appear to be peaceful, local developments. Although not everyone agrees, most archaeologists believe that the culture that emerged, the "Bactria Margiana Archaeological Complex," or BMAC, spoke Indo-Iranian or Indo-Aryan. The BMAC spread east across Central Asia to Bactria, southeast into the Indus Valley, southwest into Iran and perhaps beyond.

Interpretation of the BMAC sites presents a trenchant example of the difficulties involved in correlating archaeological and linguistic evidence. First, it is not possible to deduce language from material culture alone. Second, the material culture is almost always mixed—that is, containing elements and motifs associated with sites from a number of disparate geographical areas. Third, simple equations of culture with ethnicity, and the concomitant theories of invasions or migrations are rarely supported by physical anthropology. This last problem is particularly relevant to Indo-European studies, where nineteenth-century ideas of massive population movements, usually violent, are still adhered to by some archaeologists, usually on ideological grounds. Central Asian studies highlight all of these issues.



BMAC AMULETS

It seems clear now that material culture can, and usually does, spread by reasons of its own dynamics without large-scale migration of peoples, and the same can be true of languages. Further, it seems clear that peaceful, or relatively peaceful, assimilation is the general rule and violence the exception. Cultures are rarely insular. Long distance trading in the Bronze Age was already extensive, and we have no reason to think it is only in historical times that there have been curious and adventurous people who traveled to, and perhaps settled in, distant lands.

Thee I invoke for courage and for victory
for my body and for strength that
brings salvation to many.

—*Yasna 9.27*

Further research, both archaeological and philological, could significantly change the prevailing opinions on the origins and identity of soma and haoma. With that in mind, as a caveat and emergency disclaimer, we can, mixing the general ideas of Erdosy, Hiebert, Parpola, and Sarianidi, with some imagination, concoct a possible story.

Sometime, probably in the early Fourth Millennium, people living in Central Asia, south of the Urals, learned to tame horses. A pastoral people, horses would have allowed them to keep much larger cattle herds and to have vastly increased mobility. They shared stories of a Drink of Immortality, *amrita.* The people who became the Greeks either carried the word ambrosia with them, or picked it up along the way, probably sometime in the third millennium BCE (Cavalli-Sforza, using genetic algorithms, places the Proto-Iranian/Proto-Indic split much earlier—5,000 BCE—and the split-off of Proto-Greek even earlier. Cavalli-Sforza claims that his chronology supports the Renfrew-Gimbutas scenario of Indo-European dispersion, but his dates are radically out of agreement with Neolithic archaeology.)

Not all of these people knew about *Ephedra*—only the ones who lived near where it grew, perhaps near the Ural Mountains. In the early times, the use of *Ephedra* was not ceremonial. Some of the people started heading east, along the Ephedra Trail, and they took their bundles with them.

As the use of *Ephedra* became more and more ritualized, professional priests took over production of the beverage, in particular the pressing, and the verb birthed the noun: *sauma.* (Other instances of this process, free access → restricted priestly access → symbolic access, which may be part of the general centralization of political power in the Neolithic, are the attempted restriction of coca use by the Incan nobility, the restricted access to manna by the Hebrew priests, the traces of psychotropic plants found Tantric rituals, and, in another context, German laws restricting the use of coffee to the nobility.) The *Ephedra* people most probably spoke Proto-Indo-Iranian, and *sauma* became linked to the Drink of Immortality, amrita. Parpola (1997) believes that as the Indic speakers moved south through Bactria, they had an altercation with *Dāsas,* (Iranian: *Dahas).* The Indic tribe came out the better—and they made much of the story in the *Rg Veda.* After their violent conversion, which was probably much exaggerated, the *Dāsas* drank *Ephedra/soma.* Some of the people kept moving, south to Baluchistan and the Indus Valley, intermarrying as they went. Their culture spread faster than their genes.

In Iran the case is just as complicated, or more so. Ideas, design motifs, technology, and stories moved in many directions, both east-west and west-east. The details are not all clear, but by the time of Zarathustra, people in Iran were drinking haoma and worshipping light.

A fire still burns at Baku.

Matters of State and Liberty

Ephedrine is the active ingredient of the "look-alike" speed pills advertised in many magazines—the various pills packaged to look exactly like the amphetamine pills of yesteryear. The DEA have ephedrine on their hit list, and are trying to restrict ephedrine and pseudoephedrine in every way they can. Unfortunately, ephedrine and pseudoephedrine are almost the only two over-the-counter medications that really work. A spate of articles in journals and newspapers report occasional deaths from overdoses of ephedrine, or where ephedrine may have been a contributing factor. Herbal products, such as ma huang and various enriched mixtures of ma huang, ephedrine, and caffeine are also singled out, usually with the byline that just because a product is "natural" it is not necessarily "safe," and that these products should therefore be regulated. That natural products are not necessarily safe is of course quite true, but "safe" is a relative term. While there are a few reported poisonings from herbal products containing adulterants, by any reckoning the health risks from ma huang are minimal.

> *Besides, isn't there something wrong with the whole picture? If we banned every drug on which one could overdose, what would it leave? (Actually, it would leave LSD and marijuana—far safer that way than caffeine, nicotine, aspirin, alcohol, and 99% of the Physician's Desk Reference).*

The real reason the DEA would like to ban ephedrine is that the molecule is an ideal precursor for other (and, *at the proper dosage,* pharmacologically safe) stimulants such as methamphetamine and methcathinone. Where will this end? When will we begin the challenging but promising program of empowering our citizenry with responsibility? Cultures have to *learn* how to use the *pharmakons.* Treating free citizens like children not only impedes this process, it diminishes the very fabric of maturity and lawfulness we should be protecting.

The Ally

And yet the past comes round again
And new doth old fulfil;
In sensual transports wild as vain
We brew in many a Christian fane
The heathen Soma still!

—John Greenleaf Whittier, "The Brewing of Soma"

CATHA EDULIS

Common Names

Khat, chat, qat. The Flower of Paradise.

Related Plants and Substances

Ephedra spp., amphetamine.

How Taken

The fresh leaves and twigs are chewed. In Yemen, and Somalia, up to a pound of the fresh leaves and twigs is wrapped in banana leaves into a bundle called a *marduuf,* which keeps them fresh. The *marduuf* itself may be composed of a number of smaller bundles, each weighing about 50 grams. As the leaves and twigs are chewed, the residue is collected in the cheek where it is kept for ten or twenty minutes, until the juices are fully extracted. If the leaves were of the choicest and most tender variety, the bolus may be swallowed. Otherwise it is ejected.

Experienced chewers drink a lot of water along with the leaves.

The Ally

O, thou blessed that contains no demon, but a fairy!
When I follow thee thou takest me into regions overlooking Paradise.
My sorrows are as nothing. My rags are become as robes of silk.
My feet are shod, not worn and bleeding.
I lift up my head—O Flower of Paradise!

—Arab song, quoted in Dreiser.

The Plant

Drying the leaves changes their chemistry, so in Africa the use of khat is dependent on proximity to the plants or to a fast distribution network. Formerly, the leaves were drunk in an infusion. When European traders arrived in the Yemeni port of Mocha in the fifteenth century, khat tea was as popular as coffee. But while coffee beans make good cargo, khat leaves do not, and the rest, as they say, is history.

Two main varieties of khat are recognized, red khat and white khat, each sold in the markets under several named grades. Red khat is most preferred, and can be recognized by the red (rather than white) color of the central leaf vein.

In many parts of Somalia, khat is chewed by a majority of the population. Successful businessmen may have a special room in their houses for khat chewing. Friends gather in the afternoon, chew khat, and discuss the issues of the day for several hours. Or perhaps Koranic exegesis. In rural areas, farmers chew the leaves before performing the bulk of the day's work.

In Yemen forty percent of the arable land is devoted to *Catha edulis.* Chewing khat cuts across all social lines, chewed by rich and poor alike, by businessmen, merchants, farmers, and, more recently, students.

Effects

“About like five milligrams of methamphetamine.” But more euphoric and much shorter acting.

The Plant

The origins of khat are known only from legend. Some of the same stories telling of the origins of coffee are told about khat: that it was a gift given to two saints by an angel so that they could spend the night in prayer without dropping off to sleep.

In another story, again echoing stories associated with the coffee bean, a herder named Awzulkernayien noticed the effects that the leaves were having on his goats, who were chewing them. Awzulkernayien proceeded to try the leaves himself, and was impressed at how he was able to stay up into the late hours meditating. Awzulkernayien’s name is still mentioned in the ritual prayers recited before chewing the leaves in the eastern horn of Africa.

Like all psychoactive plants, khat is considered to be holy, to be a sacred gift, among those closest to it.

One legend is that khat was the energetic medicine that Alexander the Great used to keep his armies healthy and moving. An interesting story, in view of the widespread use of methamphetamine during World War II by the German *Wehrmacht* and other armies.

The first written mention of khat is in the 14th century, when Sultan Sabar Ad-Din stated his intention of planting khat in the Christian city of Marad after its conquest.

Taxonomy

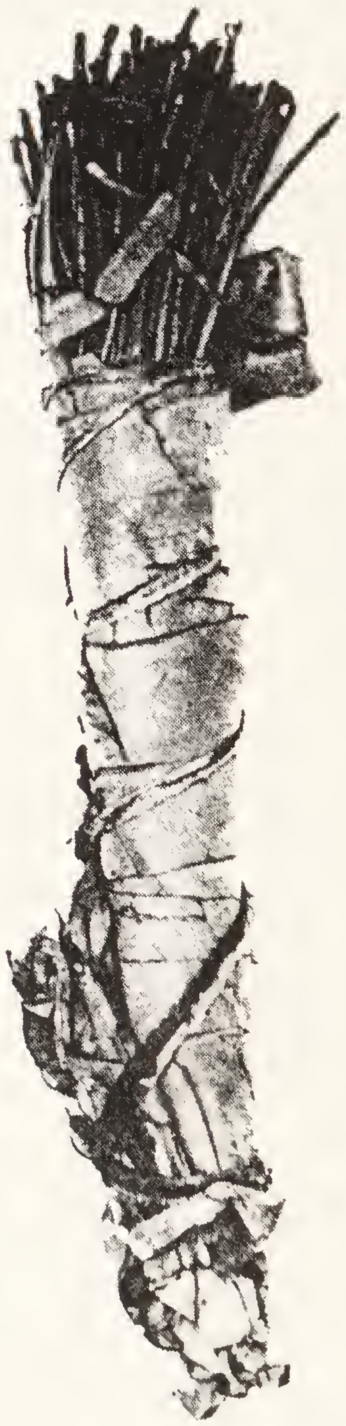
Catha edulis is in the Celastraceae. Wild trees may reach eighty feet in height. Morphological variability within the species is high. In some varieties the leaves are opposite, in others alternate. Mature leaves have a glossy surface and are faintly aromatic. The flowers are small, white, five petaled, and grow in attractive axillary cymes.

One particularly potent variety of khat comes from Kenya, where the young stems sprout directly from the major branches, and contains high concentrations of alkaloids in the bark as well as in the leaves.

Effects

Increased concentration, loquacity, improvement of thought, general well-being. Alertness. Relief from fatigue and drowsiness. Enhancement of imagination. Increase in self-confidence. Improved ability to associate ideas.

These are the same beneficial effects ascribed to low doses of amphetamine. But how many amphetamine users limit their intake to five milligrams? A distinct advantage of khat over amphetamine for many situations is that it is short-acting.



A MARDUUF

Habitual khat chewing may lead to constipation, anorexia, and insomnia. Deprivation symptoms include malaise and sometimes headaches, not unlike caffeine.

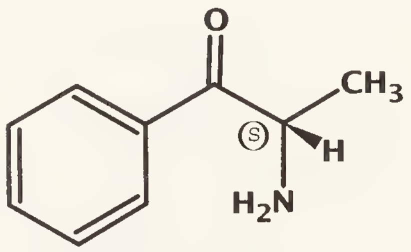
The Plant

In its natural state, khat grows in the mountains of tropical eastern Africa from 5,000 to 8,000 feet. Tiny white flowers appear in early summer, followed by seed capsules. Khat is rarely grown from seed, however, but is propagated vegetatively, from the lower branches, especially the root suckers. Break off the suckers with a nice piece of the root attached. It can be potted or planted directly in the ground. Khat likes good drainage, full or partial sun, and is tolerant of aridity, poor soil, light frosts, and coastal winds. The plant will respond appreciatively to a little feeding, especially nitrogen.

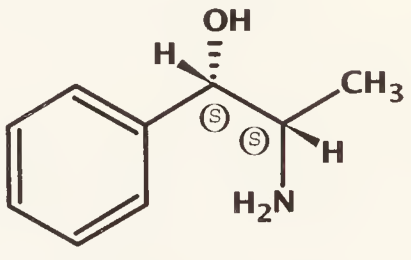
Because of its tall habit, a row of khat plants would make an excellent fence-like hedge for suburban lots. The Sunset *Western Garden Book* correctly places the plant in good standing as an ornamental shrub for zones 12, 13, and 16-24, which covers most of the west coast of the United States and some parts of the Colorado desert. Old plants in parks grow to more than twenty feet. Commercial khat is kept pruned to make it bushier and easier to harvest.

Chemistry

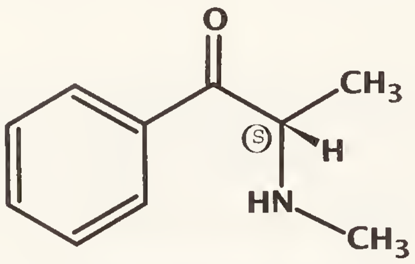
In addition to protein, calcium, iron, β-carotene, B vitamins, vitamin C, tannins and a volatile oil, one hundred grams of fresh khat leaves contain 36 mg cathinone, 120 mg cathine, 8 mg norephedrine, and small quantities of related alkaloids. Cathinone is now widely accepted to be the most active alkaloid, responsible for the greater part of the effects.



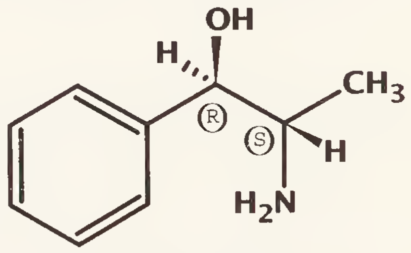
(S)-(-)-cathinone



cathine
(= (+)-norpseudoephedrine)



(S)-(-)-methcathinone



(-)-norephedrine
(= (-)-phenylpropanolamine)

In addition to the phenylpropylamine alkaloids, khat contains a group of phenylpentenylamines, with an extra carbon atom double-bonded in the side chain. Their concentration is low and their effects have not been much studied, except that they are known to be only weak dopamine releasers. Khat also contains another group of alkaloids called cathedulins. Little is known of their pharmacology, but they are not thought to contribute significantly to the main effects of the plant. Khat also contains triterpenes.

For some reason, the actual fresh weight of the leaves chewed by khat users seems to be curiously difficult for scientific researchers to measure. Reported weights vary between 50 grams and 500 grams. Peter Kalix and Olav Braenden report 100 to 200 grams, which seems reasonable. As 100 grams of fresh leaves may average more than 150 milligrams of khatamines, significant quantities of alkaloid are involved.

Cathinone is found mainly in the young leaves. The cathinone content of the leaves can be quite variable between different strains, and between different pickings. Studies have shown that the price of the leaves is highly correlated to their cathinone content, reaffirming once again the value of bioassay.

Kalix and Braemden (1985) report studies by the United Nations Narcotics Laboratory that cathinone is a phytosynthetic precursor of cathine ((+)norpseudoehedrine), "presumably" by an enzymatic process not fully developed in adult leaves, thus explaining the high content of cathinone in young leaves but not in old or withered leaves. If true, this suggests the possibility of using steaming as a means of arresting the enzymatic degradation, such as the Chinese do with tea, or the Aborigines with *pituri*. (But see notes).

Effects As with most substances related to amphetamines, reports of khat's effects on sex are mixed. Yemenis generally credit khat with increasing sexual potency. One study (Elmi), however, found that while both sexes reported an increase in libido, only the women reported a corresponding increase in performance ability.

> *I made a short, informal study on the semantics of this point. Women said that "increased sexual performance" means they would have more orgasms. Men, actually, said much the same thing—that is, that "increased sexual performance" means they would be able to bring a woman to more orgasms. I'm just reporting this. Still, it does kind of make you think . . .*

To continue: in men, Elmi's study blamed khat for both premature ejaculation and erectile dysfunction, and thus as a factor in the failure of marriages in Somalia. An American-educated economist in Yemen, Mohammed Al-Saidi, blames khat, rather than global market economics, for his country's poverty, because 80 percent of the population spend four hours every day chewing khat and socializing when they could be working. All agree that there is no crime associated with khat-chewing, and that khat's prevalence may be a reason that Yemen has virtually no reported cocaine or heroin abuse.

Pharmacology While both cathinone and cathine are stimulants, cathinone is far more potent, and acts more on the central nervous system, while cathine has more peripheral action. Various animal studies have shown that cathinone acts like amphetamine at dopaminergic synapses, eliciting release of the neurotransmitter. Drugs that block the releasing effect of amphetamine also block the same action of cathinone. Rats trained to choose cathinone over saline will choose cathine, when it is substituted for cathinone, but cathine (in that test) is eight times less potent.

Cathinone is more lipophilic than cathine, so it penetrates more easily into the sites of CNS action.

Cathinone and cathine are equally strong in producing sympathomimetic effects, such as norepinephrine release. But since more cathine is required for the CNS effects than of cathinone, users prefer high-cathinone strains which would minimize the peripheral effects (sympathomimetic effects such as increased blood pressure, sweating—the "fight or flight" syndrome.)

Cathinone is metabolized quickly, congruent with the short-acting effects of chewing khat. In fact, the rate of metabolism of cathinone is about the same as the rate of its absorption while the leaves are chewed, so the dosage is pretty much limited to the size of your mouth.

History The chewing of khat has been spreading, especially since World War II. The British tried to suppress the plant in Somalia in the early fifties, but "even shooting" failed to stop its spread (Elmi 1983). In 1957 the British replaced the prohibition with an import duty.

Effects In Djibouti, where khat is supplied to the city by airlift, it is said that the effects of the khat begin to be felt when the plane is heard overhead.

Poesis *The Qat Gimlet:*

Fill a jar with fresh khat leaves, chopped and bruised. Pour high-proof alcohol into the jar to the top, working out the air bubbles with a chopstick. Seal the jar and let macerate in darkness for several weeks. Shake occasionally.

Pour one jigger of the tincture into a glass along with one or two jiggers of Rose's lime juice. Add a little effervescent water if that's the way you like your gimlets. Add ice, and a straw. Maybe a slice of lime and a nasturtium flower if you are entertaining. Herbaceous, mildly astringent, wildly successful. The stimulating effects far surpass the weak presence of alcohol.

Methylene chloride and methanol are both better solvents for cathinone than ethyl alcohol, but then what do you do? Since cathinone may be sensitive to oxidation, it might be effective to add a little vitamin C to the chopped leaves, and to extract the alkaloid as the ascorbate.

I have heard of a quite wonderful khat wine, made with red carnation petals, of a beautiful strawberry blush color—said to be delicious and most agreeable.

> *A half-jigger of khat tincture mixed into an absinthe has also received high reviews, such as "no more than one per customer."*

The Ally A rather perfect source of natural amphetamine. The instability of cathinone and the physical process of chewing the leaves intrinsically limit the kind of abuse that is so common with speed pills or crystal. Perfectly analogous to chewing coca leaves, except that with coca the alkaloid is easily extracted. Khat is the most promising of any of the caffeine substitutes.

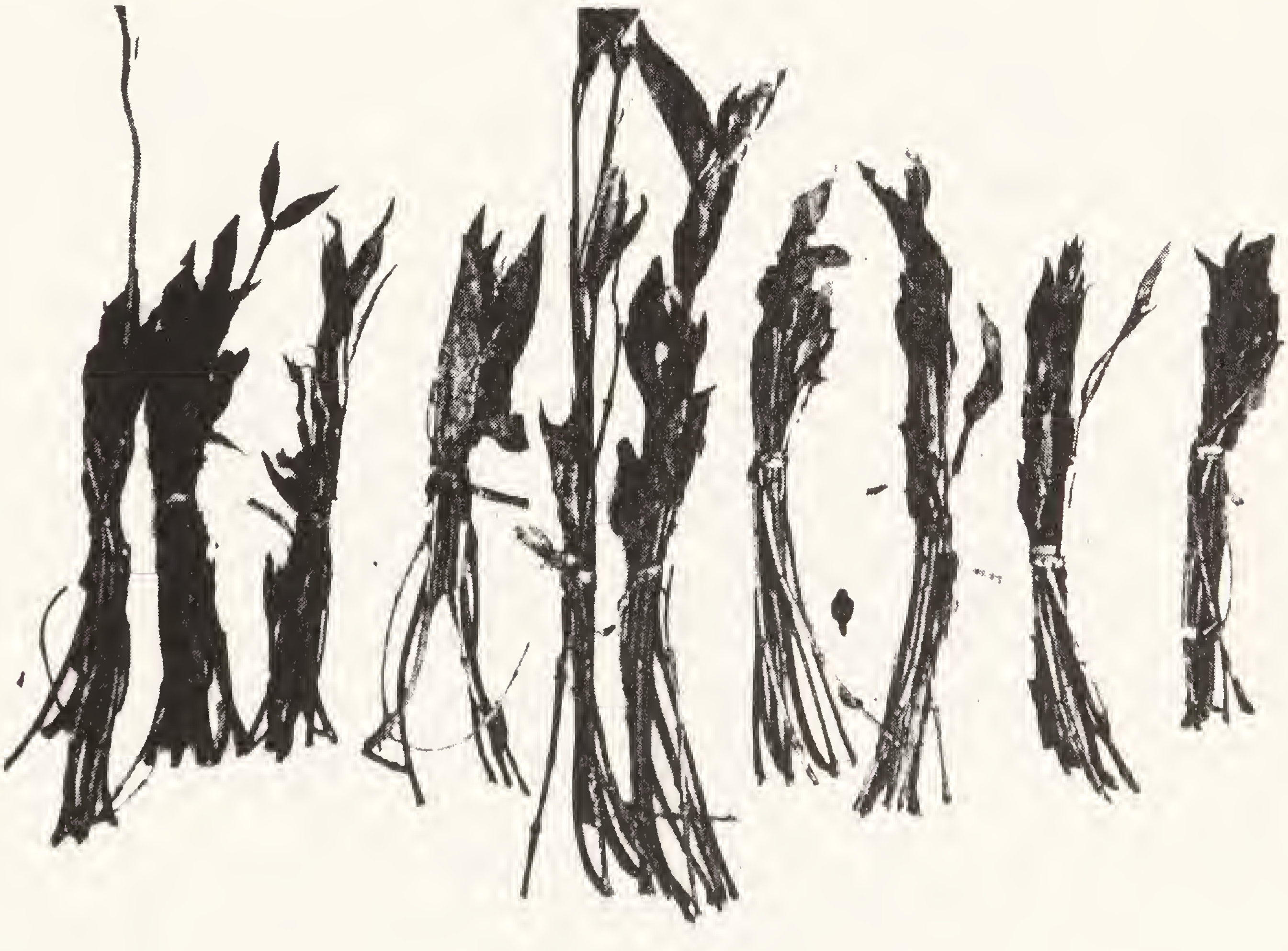
In those countries
where plants
are still free.

Matters of State and Liberty

In the United States caffeine reigns supreme. And, outside of the black market and a small number of prescriptions, unchallenged. Coffee is the biggest international commodity after oil, and evidently her corporate servants are not eager to welcome competition.

The Drug Enforcement Administration has placed cathine into Schedule IV of the Controlled Substances Act, and cathinone has now been placed on Schedule I. As if khat chewing, or any of the above mentioned chemicals were any kind of a problem in the United States. The legal status of the plant, *Catha edulis,* is unclear. The plant is not specifically mentioned, but it clearly contains a controlled substance.

Customs officials occasionally seize shipments of *Catha edulis* being imported for Somalian communities in the United States, Canada, and Great Britain. Late in 1999, police in California, acting on a tip, arrested two men who had 242 "illegal khat plants" in the backyard of their home. Canadian police in Toronto have been cracking down on khat, much to the outrage of the Somali-Canadian community.



CONTENTS OF A MARDUUF: TEN SMALLER BUNDLES

So instead of the gentle khat, we have amphetamine. Ninety percent of all illicit drug laboratories busted by the DEA and other law enforcement agencies are methamphetamine labs. That should tell us something about the demand for a good alternative to caffeine. And it should alert us to the irony of a speed culture in civil war against its own sibling. Such apparent jealousy within the family may or may not be related to the occult properties of caffeine—the two stimulants are able to co-exist in Yemen and Somalia. Still, it would be interesting to apply the techniques of psychotherapy and family counseling to this dispute within the excitantia.

The Ally

> *And by now it was that time in the afternoon when the effect of the happy possessor of khat throughout all Arabia was only too plainly to be seen. The Arab servant who in the morning had been surly and taciturn under the blazing sun was now, with a wad of the vivifying leaves in his cheek, doing his various errands and duties with a smile and a light foot . . . Everywhere the evasive, apathetic atmosphere of the morning had given way to the valor of sentient life. Chewing the life-giving weed, all were sure that they could perform prodigies of energy and strength, that life was a delicious thing, the days and years of their troubles as nothing.*
>
> *—Theodore Dreiser, "Khat"*

Matters of State and Liberty

Some chemistry students in Michigan, desiring to test out the proportional equation

amphetamine : methamphetamine :: cathinone : methcathinone

synthesized a small amount of the methyl analog. Initial reports were highly positive, but the DEA never gave it a chance. Though probably all the people in the entire United States who had tried methcathinone could have attended the same basketball game, the DEA used their emergency powers to place methcathinone on schedule I.

Subsequent reports on methcathinone from a few researchers seemingly undeterred by federal law have been more equivocal. Bingeing is said to be common, with its attendant problems of stress, inability to focus, paranoia, general chaos, and, ultimately, amphetamine psychosis. Who would want to do that if he could get good, short-acting khat, in leaf or in a hot or cold drink? The desire of the people for an alternative to caffeine is clearly evident. Let the people decide, and let the plants lead the way.

Our slogan must be repeated again:

FREE THE OUTLAWED PLANTS!

The Ally

Working in the garden, grazing a little.
Filling out income tax forms.
For hangover, for the blues, for the blahs.
For staying up late, writing.

SPEED FREAKING

Susbstance Amphetamine

Effects A tendency to monomania.

Autopilot. Or maybe a free ride, with some hint of moral condemnation there—though many of those who would condemn the idea of a "free ride" as a general moral *principle* feel quite differently about it as *principal*—say, in regard to capital gains.

But the ride is not free, and autopilot is the better metaphor. With a jet engine on your back.

> *Speed Kills.*

The slogan of the sixties, when methamphetamine began stealing its way through the lockless psychedelic communities that were using "love" as a practical governing principle. Speed and greed, and one of them ran off with the communal bank account. "Speed kills" is a beautiful example of the effectiveness of peer pressure and, conversely, the ineffectiveness of legal proscription. For a time, speed almost disappeared in psychedelic circles. It was, shall we say, a "flash." In the spoon.

"Almost" is the key here. You have to be able to accept "almost." "Almost" is the frontier, beyond is the land of the fanatic: speed freaks and their twins, Inspector Javert and his self-righteous warriors. The prisons, the spying, the paid informants. Big Brother, gangs, and guns. The Holy War.

> *Billions of dollars are spent to keep adults from having access to methamphetamine, while Adderall (amphetamine) and Ritalin (methylphenidate) are widely prescribed for children.*

We are not saying speed isn't dangerous, but let's put it in some perspective. Used properly, amphetamines are reasonably safe and highly effective stimulants—as hundreds of millions of users could attest. A single milligram can take the edge off fatigue, while speed freaks take two hundred times that much—on a laid-back day. (I once saw a speed freak mainline a whole gram of crystal meth in one shot. Such an over-amp, tremendously ill-advised as it is, underscores the remarkable range of amphetamine's physiological tolerance.)

Ott (1993) summarizes a number of studies comparing the relative effectiveness of amphetamine over caffeine: caffeine generally has no effect on reaction time while amphetamine improves reaction time; caffeine impairs hand steadiness while amphetamine improves hand steadiness; amphetamine improves coordination performance more than does caffeine. In all areas, amphetamine at the proper dosage had fewer side effects than caffeine.

Neither caffeine nor amphetamine improved intellectual performance.

The United States Army Aeromedical Research Laboratory reported that dexedrine sustained aviator performance and alertness during a 64-hour sustained wakefulness test in a flight simulator. Three 10 mg doses of dexedrine or a placebo were given on each of the two sleep-deprived days (Caldwell et al, 2000).

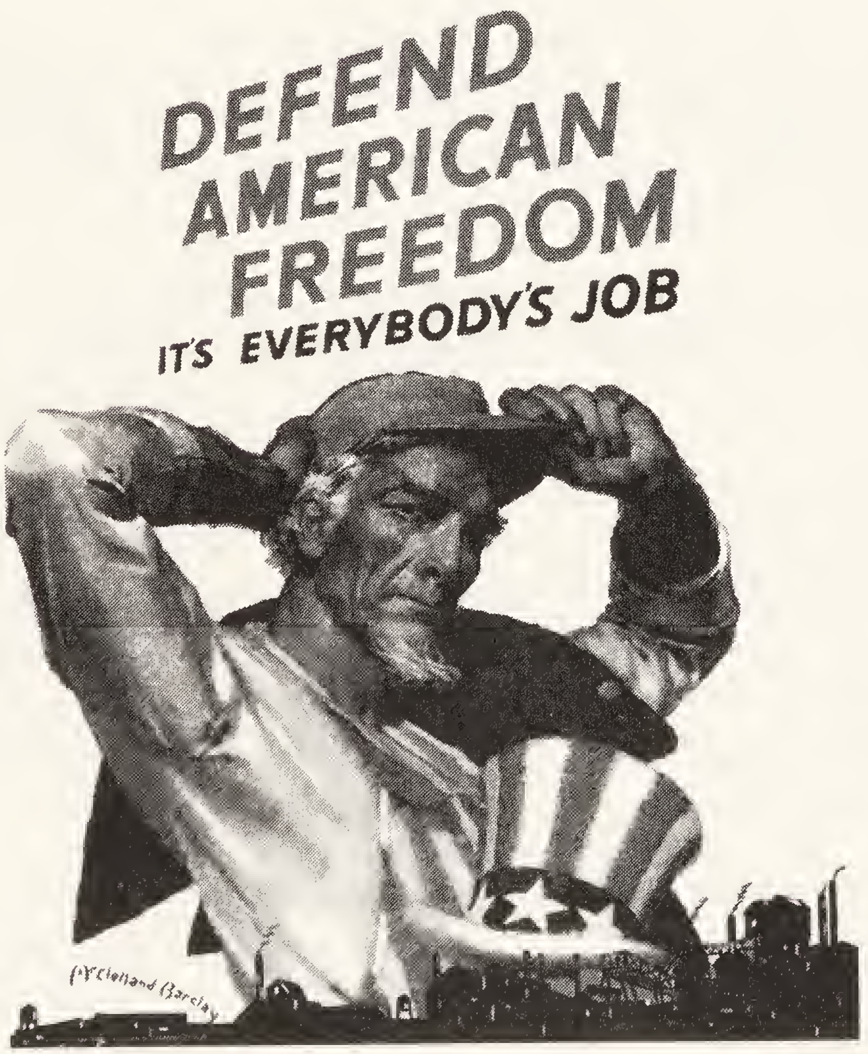
Effects Elevation in mood and confidence. Heightened motor and speech facility. Suppression of alpha rhythms during extended sleep deprivation. Increased alertness. Amphetamines tend to potentiate the pain-relieving effects of morphine.

The Ally:

at some point
you may be called upon
to keep going for several days without sleep:
keep some ups around. to be
clearheaded, avoid "comedown" as much as possible,
take vitamin B along with amphetamines . . .

—Diane Di Prima, "Revolutionary Letter #5"

History Amphetamine was first synthesized in 1887 by a German chemist named Edelsno and was used to treat narcolepsy. It was included in emergency survival packets. Use of amphetamine as an alternative stimulant became more widespread through the 1930s, when it was available over-the-counter in benzedrine inhalers. During World War II, large quantities of amphetamine (hundreds of millions of doses) were issued to soldiers, sailors, and aviators on both sides of the conflict. Meth has been called the "fuel of the *Wehrmacht,*" but Japanese, American, and British forces were also regularly issued the stimulant. Adolph Hitler took daily injections of methamphetamine. (John F. Kennedy is also reported to have taken methamphetamine injections). Methamphetamine ("leetle white peells") was given to the soldiers pursuing Che Guevara in Bolivia, until they finally ran him to ground and executed him (Daughtry`1985).



BARCLAY, FOR U.S. GOVT., 1943

When the soldiers came home from World War II, they brought the taste for amphetamine home with them, much as French soldiers, a century before, had brought the habit of absinthe drinking back from Algeria (where it was drunk to prevent malaria). The 1950s were the speed decade. In 1954 two percent of the adult population of the United States used amphetamine habitually, and a much larger percentage used amphetamine occasionally (Rudgley, 1999). The numbers were even higher in Japan. Speed, we might say, fueled the post-war recovery. None of this gigantic productive effort was without cost—sleep debt has its spiritual side.

so intent on getting
there
you forget what's
here

During the Vietnam War the United States Army used more amphetamine than all of the British and American forces in World War II combined. As late as 1971, stimulants, mainly amphetamines, were reported to account for twenty percent of medical prescriptions.

But Caffeine is a jealous God.

The Ally

Jack Kerouac wrote *The Subterraneans* on benzedrine in three days. He mounted a roll of shelf paper on a coathanger and fed it into his typewriter so he wouldn't have to stop typing to change sheets.

Common Names

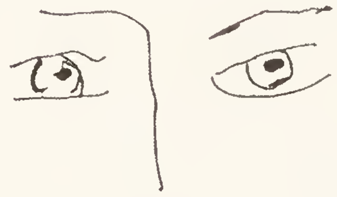
Speed. Most properly applied to pure methamphetamine hydrochloride crystal. The term crank, which used to refer to coffee, now more often refers to impure meth-that ugly yellowish gunk. Ice is meth HCl in large crystals. The hydrochloride salt has a low enough melting point (and boiling point) to be vaporized, and smoking ice has replaced IV injection for speed freaks on the high dive. All forms of amphetamine are still available in tablet or capsule form by prescription (triplicate prescription in California, New York, and many other states), but the days of cartwheels, bombers, bennys, and dexies being easily available in safe and sane dosages are, for the present, over.

That is why there are so many meth labs. That is why there is ice. That is why there is so much overdosing.

Benzedrine properly refers to racemic amphetamine. Dexedrine is the *d*-isomer. Methamphetamine, also called Desoxyn, is amphetamine with a methyl group on the nitrogen. The *d*- form is the most active.

Effects

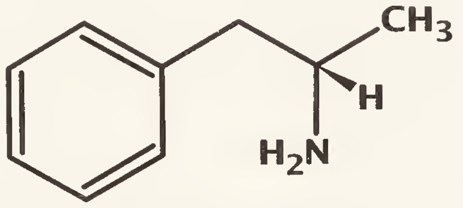
Boorish overpowering presence. Talking more than listening. Starting ten jobs and finishing none of them. A trail of chaos. Sweating. A distinctive meth "smell" or "vibe" palpably apparent to everyone else in the room.



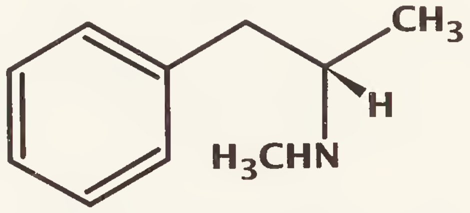
Pharmacology

Amphetamines have several modes of action. Amphetamine has some direct action on alpha-adrenergic receptors and also on 5-HT (serotonin) receptors in the central nervous system, but most of its activity is due to the indirect release of dopamine and norepinephrine from nerve terminals. The story goes like this: because of its similarity to catecholamines, amphetamine enters the nerve ending in a synapse through a reuptake channel. Once inside the nerve ending, amphetamine replaces or somehow otherwise stimulates the release of the endogenous amine stores in the synaptic vesicles, which then flood the synapse. Cocaine, by contrast, acts by blocking the reuptake channel, and should, in theory, thereby inhibit the action of amphetamine by not letting it into the nerve ending to begin with. Pre-dosing with reserpine, which releases the stores of dopamine granules in the nerve ending, nullifies the activity of amphetamine but not of cocaine. Amphetamine releases dopamine (and norepinephrine) regardless of whether or not the nerve cells are firing. This is not true of cocaine, since its action is to block the return of dopamine released into a synapse by firing.

The "alerting" effect of amphetamine is presumably due to the release of norepinephrine (NE). Higher doses release dopamine (DA) and it is thought that DA, particularly in the neostriatum, is responsible for the stereotypical behavior (repetitive motions, etc.) associated with amphetamines (Gilman 1996). Subjective bioassays of small and large dosages seem to confirm this theory. Even larger doses (or prolonged use) release serotonin (5HT) and DA in the mesolimbic system. It is tempting to believe that it is this latter mechanism that is responsible for amphetamine psychosis. Some experiments with dogs clearly implicate dopamine with the syndrome. The role of 5HT is less clear.



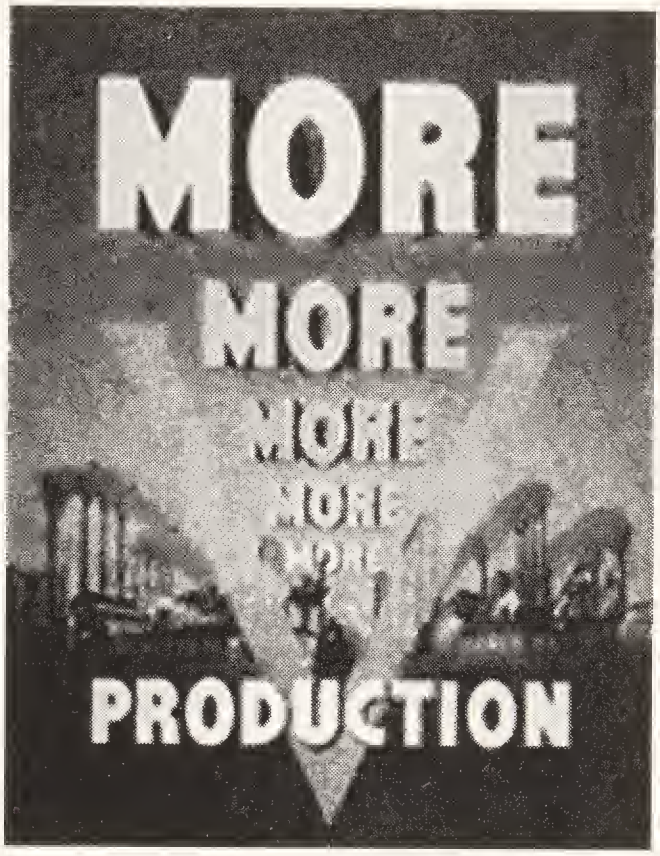
(S)-(+)-amphetamine



(S)-(+)-methamphetamine

Structurally, the methyl group on the α-carbon, the carbon nearest the nitrogen, tends to protect the molecule from being metabolized by monoamine oxidase (MAO), thus it stays in the nerve terminal longer and is able to mimic the endogenous catecholamines such as norepinephrine (NE) and dopamine (DA). The lack of a hydroxyl group on the β-carbon, the one nearest to the phenyl ring, makes the molecure more lipophilic and thus able to pass the blood-brain barrier and possess more central nervous system (CNS) activity (as compared to ephedrine) and at the same time have relatively less peripheral activity. Compared to *l*-amphetamine, *d*-Amphetamine has three to four times the central activity and slightly less peripheral activity. This also holds for the methyl analogs. But since the methylamphetamines have a higher ratio of CNS to peripheral activity than the primary amine anyway, even the *l*-isomer of desoxyn (as in, say, Vicks inhalers) is quite effective as an anti-fatigue medication even in small doses.

The Ally The worker's friend, but the boss's friend as well. You're putting out extra, ramping overtime, robbing your body to finish the shift. The boss meets his quota and pockets the surplus. Colonial bosses in South America paid their workers with coca.



U.S. GOVT. POSTER, 1942

Poesis Meth-heads despise *l*-Desoxyn, but ordinary people with long hours of physically demanding work get by as best they can. A couple of Vicks inhalers are cut open and the plugs are soaked in slightly acidified water (lemon juice will do). The plugs are further cut up and squeezed, and the liquid boiled to cook off the wonderfully fragrant essential oils. Some people filter them out using ordinary coffee filters, and skip the boiling, unless it is desired to concentrate the solution.

Effects Rampant paranoia. Bad-mouthing. Violence and generally unsocial acting-out. Complete loss of perspective. Burn-out, or full schizophrenic psychosis. Trouble.

Sleep. It's a good idea. Try some every day.

Amphetamine psychosis is real. It is significantly more prevalent in chronic amphetamine abuse than with cocaine abuse, but it seems that any stimulant can provoke it, including methylphenidate (Ritalin), ephedrine, and caffeine. Those with a history of schizophrenia are particularly susceptible—a single injection of methamphetamine can bring on a relapse in people taking antipsychotic medication. While amphetamine psychosis can be severe, full recovery can generally be expected with disuse of the drug and a few good nights of sleep.

A Yale study found that while amphetamine use in monkeys led to diminished capacity to learn, an experimental drug (unnamed in the article) that stimulated a dopamine receptor "succeeded in reversing the cognitive damage, apparently permanently" (Goldman-Rakic 1999).

Poesis Under the rubric of the War against methamphetamine, legislation introduced in 2000 by Senators Hatch and Feinstein would make mere publication of information relating to manufacture (or use!) of methamphetamine or any other scheduled substance a felony. As to which restraints, if any, may legitimately be placed on the First Amendment, this may be debated. However, since such syntheses are easily available in books, journals, and on the internet, and in the spirit of patriotism, there are a few theoretical issues of interest to the student of chemistry that should be discussed here.

One popular synthesis uses pseudoephedrine, hydriodic acid, and red phosphorus. First, the optical rotation of ephedrine and pseudoephedrine depends on the position of the hydroxyl group on the β-carbon. Thus, while *l*-ephedrine (1R,2S) and *d*-pseudoephedrine (1S,2S) have opposite optical rotations, they both have the same absolute configuration on the α-carbon. *d*-Methamphetamine ('*d*-', dextrorotatory, is also signified as "+") also has (S) configuration on the α-carbon. Since the oxygen on the β-carbon is going to be removed by reduction, it follows, from first principles, that only the chirality of the α-carbon is of interest.

Pseudoephedrine dissolves in hot chloroform and can be recovered. The ratio of PE:HI:P that I heard was 40g:100ml:1g, but I have never been able to work that out stoichemically-it always seemed, just from balancing the equations, that the hot stuff should be doubled. The HI is present in excess. When the reaction completes (long reflux), and any excess phosphorus is filtered out, neutralizing the excess acid with NaOH will convert the product to the freebase, which can be extracted with an organic solvent and then precipitated with dry HCl gas.

> *But it's never quite that simple—there are traces of iodine to remove, and the pink glow of that damned red dye. It's really a lot easier just to buy some . . .*

According to Booth, *Inorganic Syntheses, Volume I,* HI is prepared by bubbling hydrogen sulfide through 150 ml. of water into which has been placed 120 g. of iodine. It has to be stirred, and the excess H2S should be vented into a flask with sodium hydroxide solution, with the exit tube just above the surface of the solution. The reaction takes about an hour. Filter out the sulfur, boil off the excess hydrogen sulfide, and collect the hydriodic acid that distills over at 125 to 127°C.

In the Midwest resourceful kitchen chemists have been using liquid ammonia and other readily available farm chemicals to synthesize methamphetamine, almost entirely in very small batches for personal use. All of the so-called "labs" that have been busted are so small they should more accurately be called chemistry sets. Recently, an in-your-face underground chemist named "Uncle Fester" has proposed a simple electrolytic synthesis. A video is available.

A few theoretical issues,

and an alchemical "found" poem.

Cooking up methedrine has served as a shakedown cruise for a number of budding chemists. Owsley, it was once rumored, got his start with meth. (But that's ancient history. These days they probably get started with GHB.)

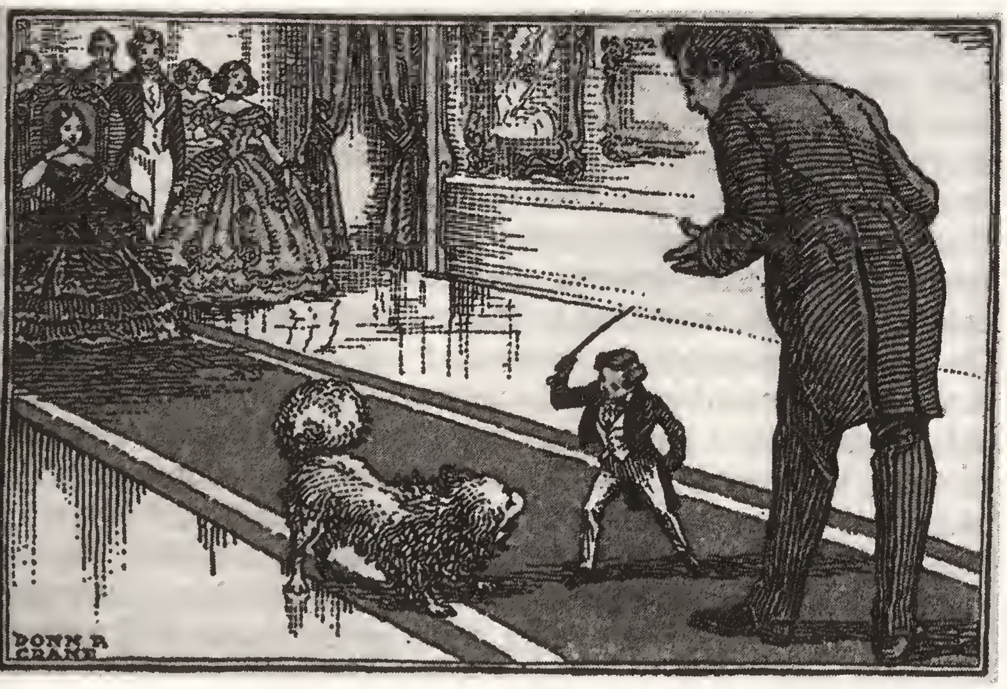
Gateway chemistry. Once you get hooked on flasks and beakers

it's either clandestine labs or grad school.

Matters of State and Liberty

Amphetamine abuse may be a significant societal problem, but, again, let's get some perspective. We're not talking about a *major* problem, such as half a million annual deaths from tobacco, or alcohol abuse, or poverty, or overcrowded classrooms, or the erosion of personal liberties. The governmental response to amphetamine abuse is excessive by several orders of magnitude, and has created worse problems in its wake. Peer group pressure was more effective in the sixties than all of the draconian government pogroms. Harm reduction should be the maxim, not incarceration. The easiest (and only) way to shut down illegal meth labs is to immediately move the amphetamines to Schedule III, so that they are easily available in pill form of appropriate dose to those who need them, with the goal of eventually moving to Schedule IV. We are not monkeys, nor rats. We are learning to live with much more dangerous substances and items of hardware without fascistic and highly expensive criminal measures. Societies are strongest when they are self-policing through custom. Self-policing is a learned behavior and self-policing should always be our stated goal.

> *The stimulants hold a particular horror for Consumerism because they resemble the macroeconomy so closely, because they are a kind of parody of the routine engines of desire.*
>
> *—David Lenson, On Drugs*



LESSON OF AUTHORITY,
CRANE, 1920

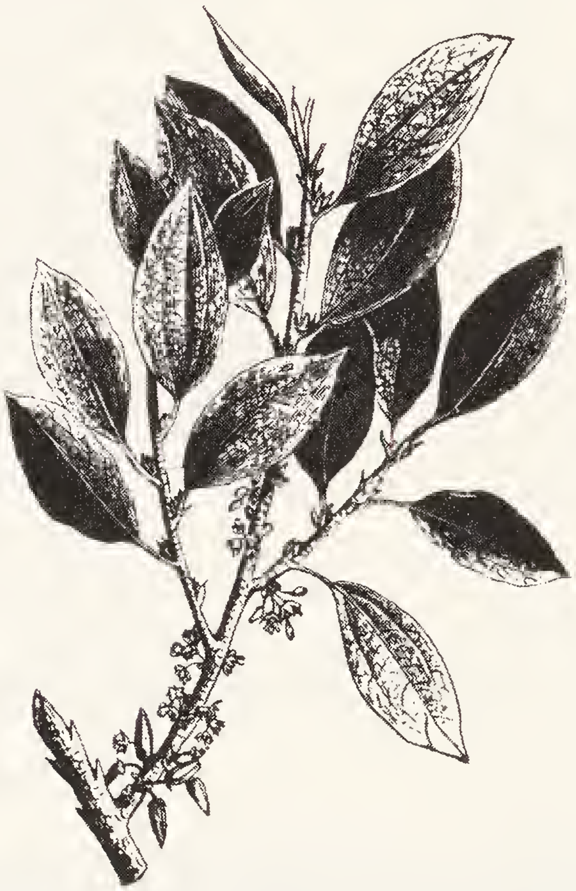
ERYTHROXYLUM COCA

Common names

Coca. The principal active constituent, cocaine, extracted and purified, is commonly called "coke" in its hydrochloride form, and "base" or "crack" as the freebase alkaloid.

Taxonomy and Related Species

Botanists have identified two hundred and fifty species of *Erythroxylum,* two hundred of them in the tropics of South and Central America, the remainder scattered through Madagascar and other tropical and subtropical areas of Africa, southeast Asia, and Australia. Only a few species of *Erythroxylum* contain cocaine, but related tropane alkaloids are common throughout the genus. Almost all *Erythroxylum* are shrubs or small trees.



ERYTHROXYLUM COCA, ENGLISH, DATE UNKNOWN

All of the world's cocaine of commerce, both licit and illicit, is extracted from one of two or three pre-Columbian cultivars: *Erythroxylum coca, Erythroxylum novogranatense,* and *Erythroxylum novogranatense var. truxillense.* A fourth variety, *E. coca var. ipadu,* is grown by farmers on a small scale in the Amazonian lowlands. Neither *E. coca* nor *E. novogranatense* appears to occur in a truly wild state, although feral populations of *E. coca* are able to survive and reproduce. Feral plants differ little from cultivated plants morphologically, so selection does not seem to have been an important factor in the plant's domestication.

According to Timothy Plowman, the center of dispersion seems to be the *montaña* of eastern Peru, the wet mountains on the east side of the Andes. None of the four cultivars hybridizes with wild species of *Erythroxylum,* nor even with other varieties within the species. This genetic isolation underscores the great antiquity of *Erythroxylum* cultivation.

Erythroxylum coca var. coca, found in the eastern *montaña* from Ecuador to Bolivia, is called "Huánuco" or "Bolivian" coca. Huánuco has large, dark green leaves and a small, red, fleshy fruit that is killed by drying. The sensitivity of the berries to drying prevents their dispersal over wide distances. The richest area of cultivation is a valley in northeastern Bolivia called *Las Yungas de la Paz*.

Erythroxylum coca var. ipadu grows in the Amazonian lowlands. This plant is much smaller than its montane cousin, a shrub rather than a small tree, and has a much lower cocaine content. *Ipadu* is distinct from other varieties of coca in several ways. The fruits are rarely fertile, so it is propagated from cuttings. Since the cocaine content of the leaves is so low, the Amazonian peoples dry and grind the leaves into a powder instead of just putting them in their cheeks. One benefit of this method is that the leaf material is frequently swallowed, thus making the rich nutrients of the plant an important part of the native diet.

"Colombian coca," *Erythroxylum novogranatense,* grows, as one would expect, in Colombia, along the northern coast of South America, and also, formerly, if not today, in Venezuela, Central America, and the Caribbean. *Erythroxylum novogranatense* is bushier than *E. coca,* has smaller, lighter, more yellowish leaves, and is sometimes grown as an ornamental shrub. At one time there were large plantations of Colombian coca in Java.

On some of the smaller Caribbean islands, where the indigenous people escaped the genocide that decimated their relatives on most of the larger islands, coca is still chewed with the same veneration that was recorded in the logbooks of Spanish mariners half a millennia ago.

Colombian coca will withstand much hotter temperatures than Bolivian coca, and is more resistant to drought. Part of this resistance may be due to the extra oils and alkaloids present in the leaves, such as methyl salicylate, which give the leaves a characteristic sweet, wintergreen odor. It is *Erythroxylum novogranatense* leaves that are used in Coca-Cola (today de-cocainized). Colombian coca leaves have a higher percentage of total alkaloids than those of *Erythroxylum coca*, but because a larger percentage of the alkaloids are cocamines and hygrine, the amount of cocaine base is approximately the same.

The most economically important variety of Colombian coca is *Erythroxylum novogranatense var. truxillense.* Trujillo coca grows as a small tree, to nine or ten feet high, and has been grown in large plantations in the arid coastal valleys of Peru since prehistoric times. Trujillo coca must be irrigated.

Part Used The leaves, or the alkaloids extracted therefrom.

Chemistry In addition to containing cocaine, *Erythroxylum* is among the more nutritious of all Andean foodstuffs. One hundred grams of coca leaf contain more than 300 calories, 18.9 grams of protein, 42.6 grams of carbohydrates, vitamins A, E, and C, and one hundred percent of the RDA for calcium, iron, phosphorous, and riboflavin.

The alkaloid content of coca leaves varies between 0.7 and 1.5 percent, depending on the variety, Bolivian coca bearing one-half to one percent, and Colombian coca (both varieties) one to two and a half percent. Seventy to ninety percent of the total alkaloids of Bolivian coca is cocaine. For Colombian coca this figure is only twenty to fifty percent. The cocaine content of *ipadu* is only one-fourth or one-half of one percent, dry weight.

How Taken

Chewing coca leaf is an acquired skill requiring some experimentation and practice to perfect. First off, of course, the leaves are not actually chewed any more than is "chaw" tobacco. Mastication is employed to soften and form the leaf mass into a quid that is then kept in the cheeks.

Coqueros in the Andes carry their supply of coca leaves in a woven bag called a *vicuña* or *chuspa*. Along with the bag there is some other container, often a gourd, to hold the lime paste. A stick is dipped into the lime, and then transferred to the quid with a deft twirl.

The chemically astute student of psychopharmacology might wonder why lime would be applied to the leaves. After all, lime will convert the cocaine to its free-base form, which is insoluble in water. On the contrary, it might seem that exactly the opposite would be preferred: some lemon juice to convert the cocaine to the water-soluble salt. But the *coqueros* have perfected their technique: by keeping the cocaine in its freebase form, it is absorbed directly through the lipophilic bucal membranes in the cheeks, bypassing the stomach and the digestive system completely. *Coqueros* believe that the effects of sucking a coca quid without lime are different from the effects obtained with lime. It is possible that the gastric juices in the stomach convert much of the cocaine hydrochloride into ecgonine and benzoyl ecgonine.

Coqueros don't add lime to their quids if they are sitting still. Without lime, the effects are said to increase alertness, but without physical restlessness—lime is saved for physical activities. By adjusting the balance between leaf, lime, saliva, and air, the skilled *coquero* can derive a spectrum of effects, and select the one appropriate to his particular situation and state of mind and body.

The Plant

Over a large part of South America coca leaves are at the heart of native culture. In many countries in South America the leaves are sold openly and legally; coca tea is the national beverage of Bolivia, and is regularly served to tourists in the Andes as a remedy for *siroche* (altitude sickness). As food, as medicine, and as a central ritual of communal spirit, the sacred leaves have proven themselves for five millennia to be beneficial allies.

In the northern countries, by contrast, cocaine seems to exaggerate Western "individualism." All too often, cocaine users isolate themselves from their neighbors, their responsibilities, and finally from their own medicine. They turn their backs on the Quest, and behave as if this white crystal were the Great Stone.

DONN P. CRANE

CATCHING THE SUN,
CRANE, 1920

Effects, the Leaves

The first effect, with the smallest dosage, is a heightening of mental alertness.

> *If you use the powdered leaves,* ipadu *style, but mostly swallow the material instead of leaving it under the tongue with lime or soda, it can come on so slowly you don't realize it is there—until someone asks you if it's working.*

Coqueros usually prefer the weaker but more flavorful Colombian coca when it is available. Plenty of alkaloid, either way. Some of the skill in chewing is learning how to avoid getting over-stimulated, with all of its associated unpleasantness. North American cocaine heads might profit from the examples of these lifelong coca afficionados.

> *Gentle, an embracing warmth, a feeling*
> *of vigor and attentive concentration.*

Some anthropologists and sociologists have written that native coca chewers do not get "high," that the quantities of coca consumed are too small to bring on the cocaine "euphoria." And for some reason, if there are no euphoric effects, native use of the sacred leaf is somehow more "acceptable." This thesis is nonsense on both counts. Two ounces of dried coca leaf, often reported as a day's ration, would contain around 600 milligrams of cocaine—not an insignificant quantity. Experienced coqueros control the strength of the effects closely, and if they really want to feel good, they'll add a little extra lime.

> *Like a pixie-dust screen covering your face: everything you look at or think about has a hint of a sparkle.*

The question as to why our culture finds good feelings, "euphoria" if you will, morally tainted is difficult. Some of the answer may have to do with a different tree, a Tree in Genesis. Some of the answer has to do with the War of Poisons—the worldwide struggle for dominance among the intoxicants (in this model the vested economic interests of human corporations are merely doing the bidding of the underlying will-to-power of the "poison"). Some of the answer has to do with dualism, that the spiritual and material planes are separate and antithetical.

> *Or maybe it is because Euphoria is the name of our culture's True God, and to utter or display it nakedly is blasphemous.*

Effects, the Crystals

Highly dependent upon the mode of ingestion, and the quantity of the material. The first effect, with the smallest dosage, is a heightening of mental alertness. With cocaine hydrochloride, you can get this with the "matchhead" dose.

Stronger doses bring on the distinctive cocaine "euphoria." Reaction time and muscular strength improve.

> *The psychic effect . . . consists of exhilaration and lasting euphoria, which does not differ in any way from the normal euphoria of a healthy person. . . . One senses an increase of self-control and feels more vigorous and more capable of work. . . . One is*

> *simply normal, and soon finds it difficult to believe that one is under the influence of any drug at all.*
>
> *—Sigmund Freud*

Pharmacology

With large doses, intellectual alertness and skill become, if anything, warped, rather than further enhanced.

The actual molecular mechanisms of cocaine's action is not completely understood. Cocaine affects both norepinephrine and dopamine, but just how it accomplishes this is still being investigated. Some believe that cocaine inhibits the reuptake of dopamine, thus creating a surplus, but it also seems that this is less true of cocaine than it is of amphetamines. Andrew Weil suggests that if cocaine is absorbed slowly, as would be the case with chewing coca, the principal effect would be on norepinephrine, resulting in muscular stimulation and alertness, while sudden high doses, characteristic of crystalline cocaine snorted or, even more, smoked, would accentuate dopamine effects, including euphoria. This is an attractive theory, but it is not completely supported. Grinspoon suggests that cocaine may not actually affect dopamine receptors directly, but may bind to nearby receptors, and as a side-effect alter the shape of the dopamine receptor enough that its binding potential is increased.

The net result, regardless of the particulars of the process, is stimulation of the central and peripheral nervous systems.

The rush, the warmth, the clarity, the extra vigor.
How fun to sit and talk. And the great sex.
At least at first.

Black market cocaine contains, in addition to any adulterants, several other alkaloids found naturally in the coca plant, mainly cocamine, hygrine, and ecgonine. Cocamine, or truxilline, refers to a group of five stereoisomers that are closely related to cocaine molecularly, but having very different pharmacological properties. Cocamine acts mainly on the muscular system. Hygrines are volatile oils, sometimes described as having the odor of cat urine. They have very little psychoactive properties. If the cocaine is extracted properly from the leaves, there will be little hygrine. Unfortunately, if the jungle cooks try to precipitate that last one percent of cocaine from the solvent by adding extra hydrochloric acid, the hygrines also precipitate. Worse, the acid decomposes some of the cocaine into ecgonine, which has only a fraction of the potency of cocaine. Ecgonine and benzoylecgonine have a characteristic wintergreen-like smell, and are found in much higher concentrations in Colombian or Peruvian coca, *Erythroxylum novogranatense*, than in Bolivian coca, *E. coca.*

The Ally

> *The "INTELLECTUAL BEVERAGE" and Temperance Drink contains the valuable TONIC and NERVE STIMULANT properties of the Coca plant and*

Cola nuts, and makes not only a delicious, exhilarating, refreshing and invigorating Beverage (dispensed from the soda water fountain or in other carbonated beverages), but a valuable BRAIN TONIC, and a cure for all nervous affections.

—Coca-Cola advertisement, 1887

How Taken

The refined hydrochloride salt of the alkaloid is insufflated into the nasal passages and sinuses. The alkaloidal free base may be smoked. Coca leaves may also be smoked, and coca cigars have been used as a tobacco substitute as well as for treating coughing and asthma.

The range of self-administered cocaine dosage is astonishing: at least two thousand percent, and probably up to double that: from a matchhead to a quarter teaspoon. Cocaine use has been correlated with increased risk of heart attack. Considering the whopping quantities often ingested by users, it's no wonder.

But bigger and bigger doses don't seem to DO bigger, or better.

And then there are the flipped out.

Where satiety seems impossible. Bingeing. This behavior is so commonly associated with freebase or crack cocaine that we must call it "characteristic."

The Plant

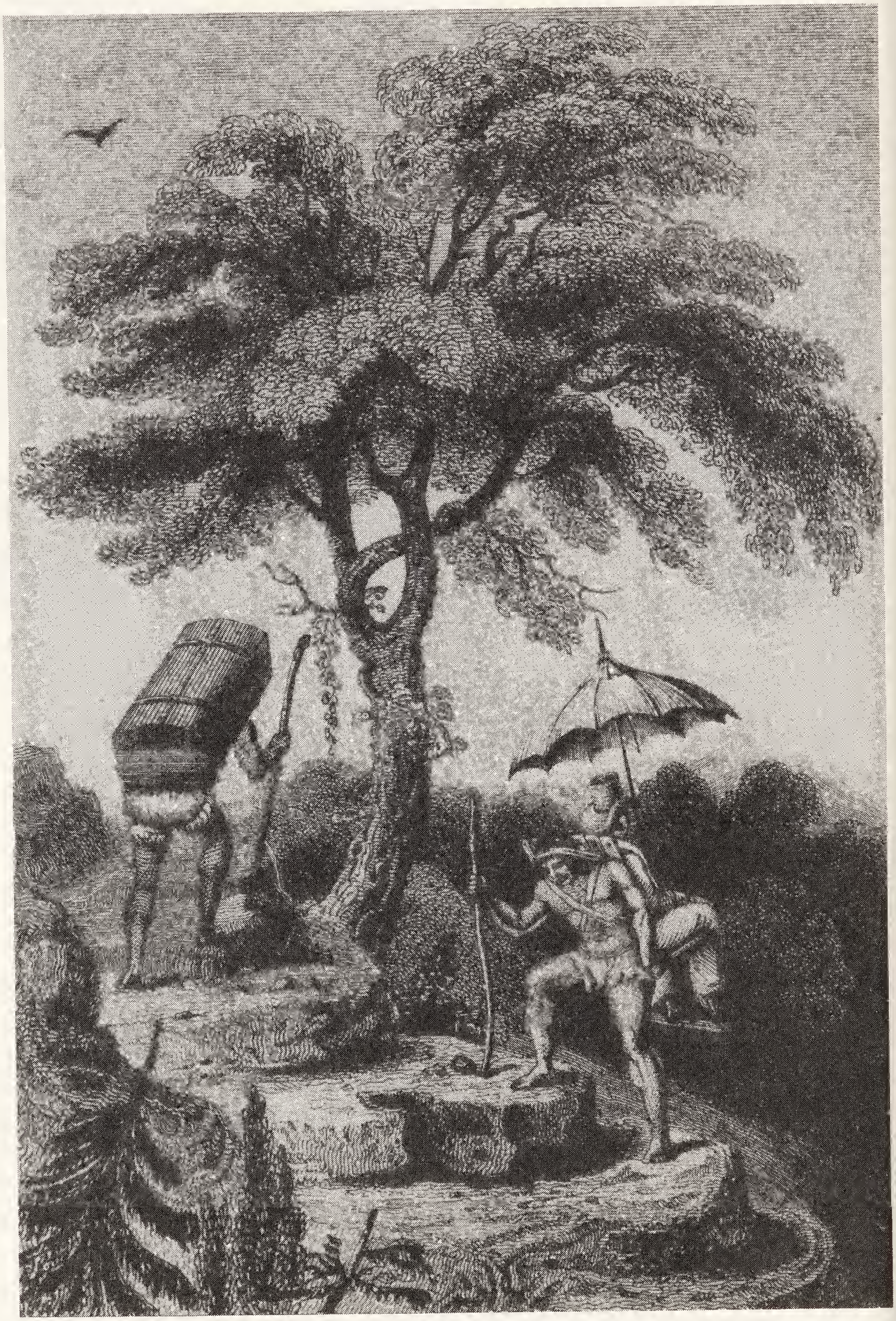
Our Lady of Yongas

And all my days are trances;
And all my nightly dreams
Are where thy dark eye glances,
And where thy footstep gleams:
In what etherial dances,
By what eternal streams.

—Edgar Allan Poe

Mama Coca has been cultivated for at least five thousand years, and probably for seven thousand. Coca is an Aymara word that means "tree." *Mama* is Quechua, used as a term of reverence for female divinities as well as with the meaning of "mother," so "Holy Tree" is one possible translation. But the etymology is not completely clear, especially since "coca" is a loan word. Antonil, in his excellent book *Mama Coca*, points out that the Kogi, two thousand miles away from the Inca's capital in the central Andes, use the word mama as a title for male shamans, and suggests that the "Mama" of Mama Coca may derive from an earlier adjectival or compound modifier of coca, such as *mamosh* coca, or *mumush* coca. These terms refer to *Erythroxylum coca,* the "original" coca of the Eastern slopes of the Andes. The important point is that "Mama Coca" can refer to a goddess, to a particular idol or shrine guarding a coca patch, or to the plant itself.

Such is the nature of the Ally.



TRAVELS THROUGH THE INTERIOR PROVINCES OF COLOMBIA,
HAMILTON, 1928

The Ally

She can bewitch. She can seduce.
She is not shy. She likes to dance
and to have you with her, by her side,
when she greets the sun.

The Plant

All of the peoples who grew and chewed (or smoked) coca have stories of its origin. One story tells that people learned of the beneficial properties of coca by watching llamas, who were eating the leaves with obvious fondness, a story reminiscent of the discovery of coffee. In the Incan story, Viracocha, the child of the sun who gave the Incas knowledge of agriculture and language, also gave them the coca plant. The coca plant's gift was to assuage the hungry, to give vigor and strength to the tired and weary, and to let the unhappy forget their miseries.

But the Incas were latecomers, imperialistic conquerors who took over the land and culture of the peoples they subjugated. One of the first things they tried to do was to keep all of the coca for themselves. Only the nobility were allowed coca. At the time of their own subjugation by the Spanish conquistadors, although the law against coca use by commoners may still have been "on the books," there was no longer very much effort at enforcement.

The most widespread of the origin myths involve a woman. In one version the woman is an adulteress.

Adultery is to alter (as, to corrupt, to adulterate).
Altering your consciousness as adultery.
Was the punishment for transgressors stoning?

They cut the woman in half. The coca tree grew up out of the place they buried her body.

And there was a woman with coca leaves growing in her long hair. Or, again, a young man who seduced a woman he found by the river. He kissed her and swallowed her saliva, which was green.

Sometimes the coca plant grows up from a finger that breaks off of a woman giving birth, the same way, it is said, that men obtained the ayahuasca vine.

The Ally

Loss of periphery. Maybe like being pushed on roller-skates, so that you have to focus completely straight ahead: you don't have time to look around and you don't (or can't) stop.

We could call it "ego-centronic," just the kind of behavior our culture rewards.

unless you get caught!

That is, the results are rewarded as long as they don't know how you got there.

The Plant

A Coca-Cola sounds pretty good right now.
Sure sounds a lot better than Jolt.
And better for you physiologically.

But the jewel of coca beverages was *Vin Mariani:* coca wine.

> *Today my blood is,* si, *tired—*
> *necesito* Vin Mariani.
> *Care to join me?*
>
> *. . . she wrote.*

Angelo Mariani was a Corsican chemist. In 1869 he patented an infusion of coca leaf extract in wine. The idea was not completely new—Wine of Coca had appeared in a few pharmacopeia—but Mariani was a marketing genius. By 1890 Vin Mariani was one of the best known and widely used tonics in the world. Mariani sent free samples of his product to artists, statesmen, composers, writers, and the crowned heads of Europe, asking for a testimonial in exchange. The luminaries responded, and Mariani filled thirteen volumes with glowing testimonials.

The list of fans reads like a who's who of the late nineteenth century, including three popes and sixteen kings, queens, or heads of state. Thomas Edison was particularly effusive in his praise, and Vin Mariani aided Edison in his regime of working long hours with only a very few hours of sleep each night. H. G. Wells liked it. Emile Zola liked it. Jules Verne liked it, and stated that he had drunk at least twenty-seven bottles of Vin Mariani wine when he sent in his testimonial. Sarah Bernhardt appeared on Mariani's posters. Pope Leo XIII sent Mariani a gold medal, and Cardinal Lavigerie wrote him that his coca had given European priests the strength to civilize Asia and Africa.

> *Ahhhh, civilization. Meanwhile, in South America . . .*

Mariani stressed that his product was not made with cocaine (he called cocaine "dangerous"), but with coca leaves. He recommended three glasses a day, and suggested using his tonic for a wide range of complaints, including influenza, nervousness, anemia, impotence, stomach and digestive problems, and melancholy. And certainly for "tired blood."

In addition to Mariani Wine, the company produced a coca lozenge, an elixir, a pastille, and a very strong coca tea, to be taken by the spoonful.

> *Maybe what America needs is a good coca chewing gum.*

In 1886, John Pemberton, a pharmacist in Georgia, was inspired by Mariani's Wine to concoct his own stimulating tonic: Coca-Cola. The original Coca-Cola was based in French wine and was advertised as a tonic for headaches and as a stimulant. A few years later it was reformulated without the wine, with caffeine-containing Kola nut extract and marketed as a "temperance" drink. Pemberton sold his drink to Asa Candler in 1892, who substituted soda water for plain water, and Coca-Cola was recognizably in its present form.

> *Except it was better—a LOT better.*

The soda water in Coca-Cola is why soda fountains are part of American drug stores.

The Ally

> *I am just now busy collecting the literature for a song of praise to this magical substance.*
>
> *—Sigmund Freud, letter to his fiancee Martha, 1884.*

Freud began using cocaine hydrochloride in 1884, and continued using it for at least ten years. After 1895 there is no more mention of cocaine in his writings. But by 1895 using cocaine would not be something that a psychologist seeking acceptance for his radical and controversial views might want to be associated with. Nowhere does Freud speak or write about life without cocaine. On the contrary, if we might make inference, the presence of mama coca, at least in spirit, pervades much of Freud's later work.

FREUD

Über Coca was Freud's first major book. It is a well-written and enthusiastic account of both cocaine and the coca plant, and stands as a model for many papers written since. Freud begins with a botanical description of *Erythroxylum coca,* and the use of the plant in South America, including the legend of Manco Capac. He continues his account with the uses of cocaine in Europe, his own research, and outlines possibilities for future use and research of cocaine, both medical and nonmedical (he includes its use as an aphrodisiac). Freud hoped that *Über Coca* would make him a name, and it did, though not exactly as he had intended. The paper certainly made a name for cocaine, and Freud has been called the "rediscoverer" of cocaine.

For information about coca, Freud relied heavily on the work of Paolo Mantegazza, an Italian neurologist. Mantegazza, who published a paper in 1859 about the medicinal properties of the coca leaf, was enthusiastic about his own experiences with coca. Not long after Mantegazza's essay was published a German chemist isolated the principal active alkaloid from the leaves, cocaine. When Freud began his researches, cocaine was available in a number of forms from a couple of pharmaceutical firms, but had little market (and little interest). Freud's paper changed this, and Parke-Davis marketed cocaine in a number of forms, including fluid extract, coca wine, coca cordial, cocaine inhalant, and as cigarettes and cigars, mixed with tobacco.

Freud first experimented by taking cocaine orally, in water:

> *A few minutes after taking cocaine, one experiences a sudden exhilaration and feeling of lightness. One feels a certain furriness on the lips and palate, followed by a feeling of warmth in the same areas. . . . It seems to me noteworthy—and I discovered this in myself and in other observers who were capable of judging such*

> *things—that a first dose or even repeated doses of coca produce no compulsive desire to use the stimulant further; on the contrary, one feels a certain unmotivated aversion to the substance.*
>
> *—Sigmund Freud, Über Coca*

Freud outlined a number of uses for cocaine:

> *a) as a stimulant, for hysteria, hypochondria, melancholic inhibition, stupor, and neurasthenia;*
>
> *b) for digestive disorders of the stomach, such as dyspepsia, and over-eating;*
>
> *c) for cachexia, ("Long-term use of coca is further strongly recommended in all diseases which involve degeneration of the tissues, such as severe anemia, phthisis, long-lasting febrile diseases, etc.")*
>
> *d) for morphine and alcohol addiction;*
>
> *e) for asthma;*
>
> *f) as an aphrodisiac;*
>
> *g) as a local anesthetic.*

Freud even entertained the idea that cocaine might be a "source of energy." He cited one experiment in which two animals, one with cocaine and the other without cocaine, were starved in a laboratory cage, and that they both succumbed. But against this experiment he mentioned the historical "starvation of La Paz," where those who used coca survived while the abstainers did not. Freud mentioned how the nervous system can affect the body's use of nutrients and energy, that psychological factors can cause a man to lose weight, and that it is quite possible that cocaine could enable the body to metabolize nutrients more efficiently.

Freud performed experiments to measure the perceived increase of muscular strength after taking cocaine, using a device of his own construction to measure strength of grip. He performed a similar experiment to measure reaction time, using another home-built apparatus that oscillated 100 times per second. The devices were accurate enough to show that there was a natural daily fluctuation for both parameters, and that individual disposition had a large effect on the benefits derived from the cocaine.

> *At present it is impossible to assess with any certainty to what extent coca can be expected to increase human mental powers. I have the impression that protracted use of coca can lead to a lasting improvement if the inhibitions manifested before it is taken are due only to physical causes or to exhaustion.*
>
> *—Freud p. 64*

Freud's unreserved embracing of cocaine is most characteristic of the Ally. As a poison doctor, he was still a novice.

The Plant

Our Varicocha first this Coca sent,
Endow'd with leaves of wond'rous Nourishment,
Whose Juice Succ'd in, and to the Stomach tak'n
Long Hunger and long Labour can sustain;
From which our faint and weary Bodies find
More Succor, more they cheer the drooping Mind,
Than can your Bacchus and your Ceres join'd.

—Abraham Cowley

Signatures The biosynthetic precursor of cocaine is putrescine, a double amine formed by the decarboxylation of ornithine, an amino acid.

Americans learned about putrescine in 1862 from the nearly four thousand human bodies left decomposing on the fields around Shiloh Church after two days of fighting. Twenty years later, ill and in need of money to care for his family, Ulysses S. Grant drank Mariani's cocaine tea every day to give him the strength to write about the battle in his memoirs.

The Ally Ernest Shackleton's reputation for endurance and long marches is legendary. Probably England's greatest polar explorer, in 1909 Shackleton and his party came within one hundred miles of reaching the South Pole but ran out of food. To reach a distant food depot, they had to make long hikes in bad weather pulling sleds on their emergency rations alone. The emergency rations were called "Forced March" tablets. They were cocaine, and they swallowed them once every hour. Shackleton didn't lose a man.

SHACKLETON

The Plant *Erythroxylum coca* is almost a perfect crop plant. It will thrive on poor soils and steep slopes. The seedlings are planted out when they are sixteen or eighteen inches high, are ready for their first harvest in a year and a half, and can then be harvested four times a year for forty years or longer. The plant has great natural resistance to most insects, especially ants: cocaine is a potent insecticide.

An Amazonian moth, *Floria,* feeds upon the coca plant as a defense against predators. The larvae concentrate so much alkaloid in their bodies that they actually excrete significant quantities of cocaine.

> *Bug juice, anyone?*

Signatures

When the Incas conquered their neighboring peoples along the Andes, they appropriated the coca plant for themselves. Again, the signature of excitantia is intertwined with imperialism and militarism. The Incan royalty had so much hubris that the fourth Incan ruler named his queen "Mama Coca." That one hundred Spanish cutthroats were able to topple an empire stretching a thousand miles should not be surprising to any student of tragedy. The Spanish conquerors were more pragmatic: they gave their enslaved workers coca instead of food.

> *. . . for thy sake alone*
> *The spacious World's to us by Commerce Known.*
>
> *—Abraham Cowley*

Toxicology

While reserpine blocks the action of amphetamine by releasing the dopamine stores in the granules, it does not affect the action of cocaine. This suggests that cocaine acts as a reuptake blocker. Dopamine is only released when the synapse is active.

Cocaine is also an MAO inhibitor. This often over-looked feature of cocaine may explain why some shamans in northern Chile say that their hallucinogenic *Anadenanthera* snuff (or smoke) is only effective if one chews coca first.

Cardiovascular effects of cocaine are minimal and difficult to correlate, but recent studies indicate that the risk of heart attack is increased ten to twenty-fold during the first hour after ingesting cocaine. Still, death from cocaine overdose is rare, especially considering the extent of cocaine abuse in the United States and other countries. But the risk should not be minimized.

Evidence is accumulating that the presence of alcohol in the body interacts with cocaine in deleterious ways. Cocaine forms different metabolites when alcohol in present and cocaethylene, in particular, may increase the incidence of sudden death from heart failure.

High temperatures, especially direct flame, applied to freebase cocaine (as is common when smoking "crack") create several chemicals of unknown toxicity, which may contribute to the deleterious effects of ingesting cocaine through this method.

Cocaine is a superior local anesthetic: a tiny crystal can have miraculous effects when removing painful splinters from children. Cocaine has been largely replaced by the synthetic lidocaine in dentistry, but recent research strongly implicates lidocaine as a carcinogen. Cocaine would be safer.

Chronic overdosing of cocaine often produces paranoid and irrational behavior. Long-term effects (five days) of muscular and nervous depression are seen in animals, especially amphibians. Cocaine can suppress REM sleep. At high doses, cocaine probably augments the synaptic action of norepinephrine.

Withdrawal creates depression. Dopamine and serotonin levels drop. Catecholamines levels also fall, which may be why those in recovery often have intense cravings for tobacco.

The Ally

In low doses, a most remarkable and effective stimulant; at high dosage, an indulgence, a hedonism extremely risky for anyone on the path of knowledge.

> *And there is Sagredo, horns showing through his mad hair,*
> *mocking my words:*
>
> > *I mean, like, except at parties, right?*
> > *I mean, really, man, I mean.*

The gradual and unobtrusive effects of coca leaf chewing can be closely simulated by blowing a matchhead line of cocaine. Or you could put a like quantity inside your lower lip along with a tiny amount of baking soda. Or you could make a dilute solution and use an atomizer as a nasal spray.

> *Or you could spray the solution onto some mint leaves, add a little bit of lime and, like, chew for real.*

It is getting more difficult to be serious.

> *Cocaine makes me feel like a new man, and he wants some too.*
>
> *—Richard Pryor*

Signatures

Nothing is easier. Than to use stimulants habitually.

History

Before 1900, cocaine was widely available in patent medicines for a wide variety of ailments and complaints, as well as in Coca-Cola and Vin Mariani. Anti-cocaine sentiment began developing around the turn of the century, especially in the South, where it was feared that cocaine would incite "Negroes" to attack whites. Newspapers published accounts of "Negroes" on cocaine who had superhuman strength and were impervious to bullets. One southern police department changed from .32 caliber to .38 for just that reason. Similar sensationalist stories appeared in the nineteen-seventies, about PCP.

> *"Cocaine . . . increases pistol marksmanship, creates*
> *superhuman strength, cunning, and efficiency."*

Passage of cocaine prohibition laws in the South coincided with the passage of segregation laws, a rash of lynchings, and general high visibility of the Ku Klux Klan. By the late twentieth century the racist program had been expanded and refined, and was able to use the powers of state and Federal government. Lynching was replaced by shooting, and segregation effected by massive imprisonment on a scale beyond any other country in the world.

BULUC CHABTAN,
MAYA DEITY OF WAR
AND HUMAN-SACRIFICE

At the turn of the Millennium, one-quarter of all the prisoners in the world were incarcerated in the United States. More than sixty percent of these prisoners were incarcerated for non-violent crimes, mostly drug offenses. The cost of incarcerating the non-violent offenders exceeded the total Federal spending for welfare programs by fifty percent. One in three black men between the ages of 20 and 29 were under some form of criminal justice control in 1991. In some states, up to forty percent of African-American males have lost their right to vote.

—Justice Policy Institute, 1999

In spite of hundreds of billions of dollars spent on the war on drugs and all its attendant social miseries, cocaine is still widely available on the black market and has not risen in price. The war on drugs has had no effect on the availability of cocaine. (In 1999, the Spanish Navy seized ten thousand kilos of cocaine, the largest cocaine seizure ever in Europe.) If North Americans have tempered their use of cocaine, it is certainly not for any lack of availability, nor, I would say, because of offensively simplistic propaganda campaigns such as DARE. It is because society, through experience, has come to a fuller understanding of, and respect for, the coca ally.

The Plant

Nowhere are the differences between plant and chemical more pronounced than with coca and cocaine. Indians in the high Andes chew the leaves almost continuously, with few, if any, ill effects. Some studies have found the health of the coca chewers to be better than that of the control groups. Contrast this with purified cocaine. And especially with the freebase form used for smoking. Characterized by increasing dosage to the point of nonstop preparation: filling the pipe, smoking the hit, and thus repeating until some overwhelming force, such as running out of crystal, intervenes. Stark personality changes, almost entirely for the worse. Loss of productivity, loss of center, loss of perspective, loss of soul and shadow.

> *Can't you write in sentences anymore? Is this your brain getting in touch with your subject matter?*

And what irony that outlawing the plant and leaves, more than anything else, drives the outlaw industry that cooks them into powder.

First step:

> *Free the outlawed plants.*
> *Amnesty for prisoners of the drug war.*

Instead of Coca-Cola and Vin Mariani, we have crack.

History

In the mid nineteen-seventies cocaine was enjoying the greatest popularity, prestige, and good press that it had received in many years. Drug researchers who studied cocaine users reported that, for the most part, the benefits of cocaine use outweighed the dangers, and were even saying that cocaine was not addictive. It was chic to snort a line at a party.

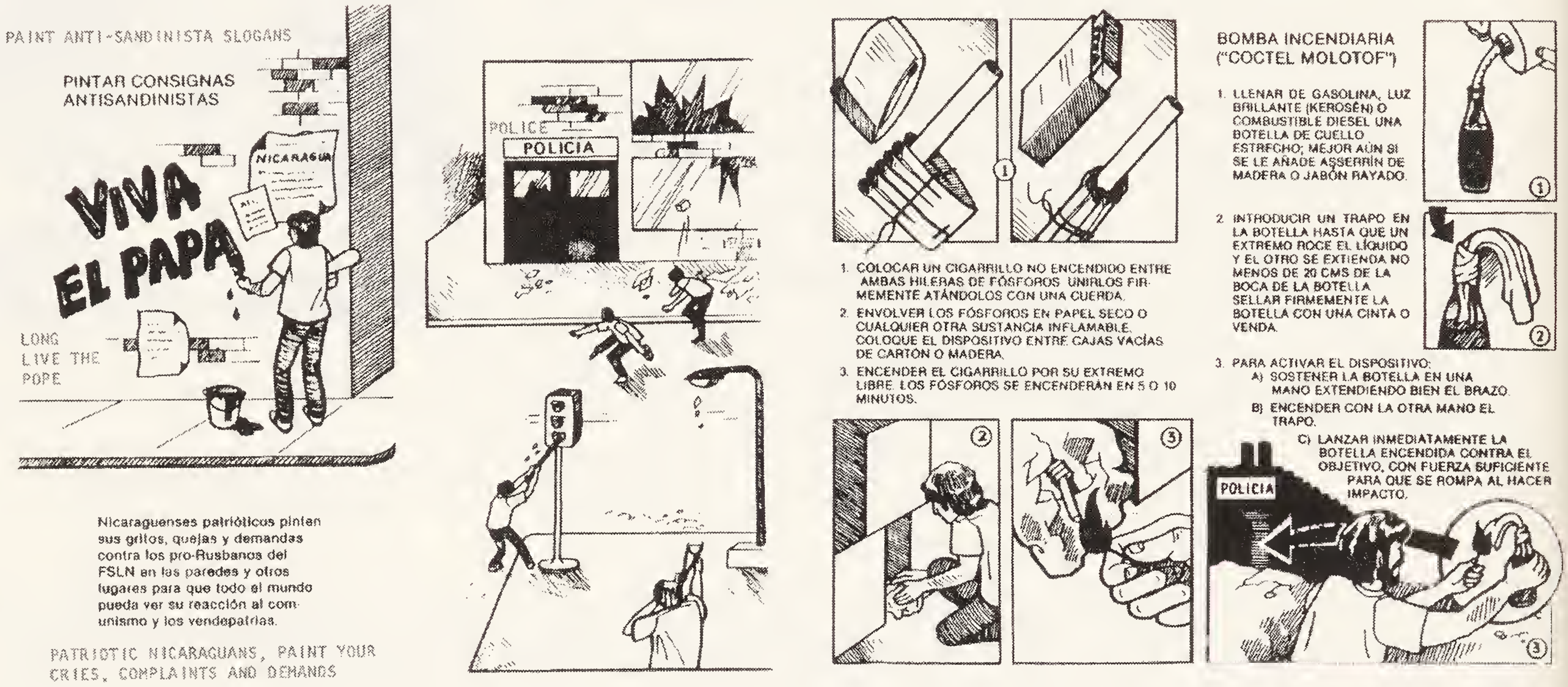
And fun.

THE SOCIAL MASQUERADE, BEARDSLEY, 1894

But in the cocaine exporting cities of South America, such as Lima and La Paz, doctors were reporting a new and disturbing phenomenon: habitual smoking of alkaloidal cocaine paste. Smokers, often from the middle or upper middle classes, were doing things like quitting medical school, stealing from their families, and generally ignoring everything except *base* smoking, even things like eating. As paste was almost never seen in the United States, some chemically aware researcher on the West Coast began converting the hydrochloride salt back into alkaloidal cocaine, which, with its low melting point, could be vaporized and inhaled. Some of the chemical expertise of cocaine freebasers was probably learned from having to repurify the adulterated cocaine that was common in the black market in those days. Ronald Siegel, who had been following the lives of ninety-nine cocaine users for four years, noted in 1979 that six of them had become confirmed freebase smokers. Robert Byck, testifying before Congress in 1979, warned that such confirmation was characteristic—that smoking cocaine was different from snorting cocaine, that the Government had a chance to head off a disastrous epidemic if it would launch an educational campaign, but that if it didn't stop lying about powder cocaine, nobody would listen to any warnings about freebase. Nobody stopped lying, and nobody listened. The popularity of freebasing continued to grow, mostly among the well-to-do (such as Richard Pryor, who set fire to himself in a freebasing-related solvent explosion in 1980). Smoking cocaine seemed to elicit craving and binge behavior with an immediacy and persistence not even matched by heroin.

Around 1979, the year the Sandinistas defeated the Guardia Nacional and overthrew the Somoza regime, a new method of preparing freebase cocaine was invented in California: basifying with baking soda. The advantage of the new method was that no solvents were required. The whole process could be done in water. Adding baking soda to an aqueous solution of cocaine hydrochloride precipitates the base. Boiling off the water leaves chunks of cocaine base mixed with the baking soda: "rocks." The water can be boiled completely off, or the precipitates can be filtered and dried. Either way, you get handy chunks of cocaine-soda in an ideal size for smoking and marketing. But it took a few years for crack to take off. For one, the price of cocaine had to drop. And that required the collusion of governmental agencies. Cocaine was still a rich man's drug.

NICARAGUAN PATRIOT:
TO SABOTAGE
THE MARXIST TYRANNY
IS TO VINDICATE
SANDINO'S MEMORY.
LONG LIVE FREE NICARAGUA!



PAINT ANTI-SANDINISTA SLOGANS

PINTAR CONSIGNAS ANTISANDINISTAS

LONG LIVE THE POPE

Nicaraguenses patrióticos pinten sus gritos, quejas y demandas contra los pro-Rusbanos del FSLN en las paredes y otros lugares para que todo el mundo pueda ver su reacción al comunismo y los vendepatrias.

PATRIOTIC NICARAGUANS, PAINT YOUR CRIES, COMPLAINTS AND DEMANDS

1. COLOCAR UN CIGARRILLO NO ENCENDIDO ENTRE AMBAS HILERAS DE FÓSFOROS. UNIRLOS FIRMEMENTE ATÁNDOLOS CON UNA CUERDA.
2. ENVOLVER LOS FÓSFOROS EN PAPEL SECO O CUALQUIER OTRA SUSTANCIA INFLAMABLE. COLOQUE EL DISPOSITIVO ENTRE CAJAS VACÍAS DE CARTÓN O MADERA.
3. ENCENDER EL CIGARRILLO POR SU EXTREMO LIBRE. LOS FÓSFOROS SE ENCENDERÁN EN 5 O 10 MINUTOS.

BOMBA INCENDIARIA
("COCTEL MOLOTOF")

1. LLENAR DE GASOLINA, LUZ BRILLANTE (KEROSÉN) O COMBUSTIBLE DIESEL UNA BOTELLA DE CUELLO ESTRECHO; MEJOR AÚN SI SE LE AÑADE ASSERRÍN DE MADERA O JABÓN RAYADO.
2. INTRODUCIR UN TRAPO EN LA BOTELLA HASTA QUE UN EXTREMO ROCE EL LÍQUIDO Y EL OTRO SE EXTIENDA NO MENOS DE 20 CMS DE LA BOCA DE LA BOTELLA. SELLAR FIRMEMENTE LA BOTELLA CON UNA CINTA O VENDA.
3. PARA ACTIVAR EL DISPOSITIVO:
   A) SOSTENER LA BOTELLA EN UNA MANO EXTENDIENDO BIEN EL BRAZO.
   B) ENCENDER CON LA OTRA MANO EL TRAPO.
   C) LANZAR INMEDIATAMENTE LA BOTELLA ENCENDIDA CONTRA EL OBJETIVO, CON FUERZA SUFICIENTE PARA QUE SE ROMPA AL HACER IMPACTO.

SABOTAGE MANUAL, PUBLISHED BY THE CIA AND DISTRIBUTED THROUGHOUT NICARAGUA, C.1980 (PP. 8 & 14)

When the Reagan/Bush ticket took over the White House from Jimmy Carter, the bullies and hit men of the Somoza regime who were hiding out in Guatemala took heart. The socialist-minded Sandinistas were labeled Communists, and Somoza's ex-police and mercenaries were suddenly called "freedom fighters."

The United States had supported Somoza for years, both militarily and with foreign aid, but with the Sandinistas in power, Reagan cut off all aid to Nicaragua and began actively supporting the *Somocistas*, probably the most widely hated political group in Central America. By 1981, the CIAs role in arming, supplying, and directing the Contras was secret but official. The CIA objective was to destabilize the Nicaraguan government by any means possible, including disinformation, bribery, torture, terror, bombing, and armed invasion. By the end of 1982, the CIA direction of the Contras was no longer secret. Someone at the CIA, allegedly William Casey himself, leaked the story to *Newsweek*. The response from the Congress was overwhelmingly negative, one congressman calling the *Somocistas* "vicious, cutthroat murderers." On Christmas Eve the House passed the Boland amendment, specifically prohibiting the use of taxpayer funds to overthrow the government of Nicaragua, by a vote of 411 to 0. In July of 1983, the

House passed another resolution to cut off all aid to the Contras, military, humanitarian, or otherwise.

The White House, in total disregard of Constitutional authority, decided to continue to support the Contras clandestinely, and placed the project in the hands of a Marine lieutenant colonel, Oliver North, and the National Security Council. North's efforts to continue supplying the Contras with arms and money led to trading weapons to Iran, also specifically illegal, and drug smuggling on a massive scale. Some of the story came to light during the Iran-Contra Hearings in 1987, and more came out in the Kerry Committee Hearings of the same year. Kerry uncovered direct links between drug dealers and the Contras. Pilots admitted to flying weapons down and cocaine back. Even the DEA station chief in Costa Rica admitted to Kerry that the Contra supply infrastructure was being used to smuggle drugs. But Kerry's report was hushed up. It took an investigative reporter named Gary Webb (1998) to fill in the blanks and the documentation.

The major Nicaraguan players were Enrique Bermúdez, CIA agent and supreme military commander of the Contra FDN; Norwin Meneses, recruiter and arms supplier for the Contras and a long-time drug trafficker with close ties to Bermúdez, the Colombian Cali cocaine cartel, and later the DEA; and Danilo Blandón, head of the Los Angeles cocaine distribution ring. Blandón originally worked for Meneses, but later struck out on his own, eventually becoming a DEA informant and set-up man. Meneses himself, who had been Blandón's supplier, said that between 1980 and 1991, Blandón moved more than 100,000 pounds of cocaine, well over a billion doses. Blandón's main dealer was a remarkably enterprising young African-American man named Ricky Ross. Ricky's first distribution network targeted South-Central Los Angeles, where he lived, but he later branched out nationwide. The Nicaraguans also sold Rick and other inner city dealers weapons, surveillance equipment, and other military technology generally only available to governments. The large influx of money and guns into South-Central Los Angeles fueled the growth and power of two street gangs, the Crips and the Bloods. Rick Ross became a multimillionaire and built up a mini-empire, buying real estate and businesses. Blandón served as his father figure and advisor.

The whole operation was protected, as much as such things can be, by Contra supporters in the CIA, the DEA, and the White House. By 1985 regular one thousand kilo shipments of cocaine were landing at Carswell Airforce Base in Texas. Oliver North and the CIA had adjoining hangars. Guns and food were flown south; cocaine, and sometimes marijuana, were flown north. Government involvement ranged from direct collusion to looking the other way to squelching criminal investigations, all in the name of national security.

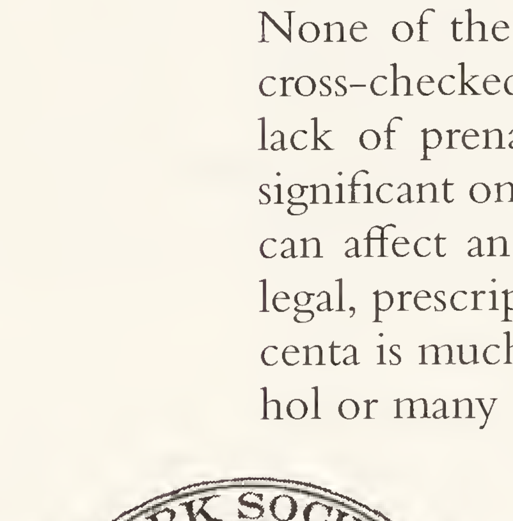
Most of this was no secret on the streets. In the nineteen eighties, prices for cocaine were at an all time low. Many politically aware people stopped using cocaine just because they didn't want to help the Contras.

The Contra drug ring had not invented crack, but crack served so many reactionary purposes that somewhere in a smoke-filled room, evil-minded men must still be clinking their glasses of scotch and congratulating themselves. In addition to funding the Contras, crack was a white smokescreen hiding the greatest rip-off of public and corporate money and Constitutional civil liberties in American history. With the collusion of the press, particularly the television media, crack became the scourge of the land. Any talk of legalizing outlawed plants such as marijuana was lost in the new crack terrorism. Crack was blamed for all of the social ills of poverty: it was the greatest red herring since, well, the Reds. No one looked at the gutting of social programs and the decline of public education. That the richest of the rich, the top one half of one percent of Americans, were increasing their ownership of the total wealth from 24% to 36% was relegated to the back pages: crack was on page one.

Prisons became America's largest growth industry. Horror story followed horror story. Tougher crime bills were passed. The courts relaxed Constitutional due process restraints until "good faith" was all that was required of the police to seize (and keep) personal property. Rules of evidence were relaxed. It was war, the war on drugs, and nothing was too severe or cruel or excessive for punishing the drug user.

Unfounded stories appeared about "crack babies." Newscasters claimed that the millions of babies being born to "crack mothers" were destined to be tomorrow's delinquents: anti-social retards beyond hope of redemption from either medicine or education. So why bother to fund health care for the poor or schools, or special education?

Except that it was all baloney. It was LSD chromosome damage all over again. None of the studies on "crack babies" that the headlines were based on had cross-checked for alcohol abuse, tobacco use, poverty and malnutrition, or the lack of prenatal care—all factors which since have been proven much more significant on infant health than cocaine use by the mother. Many kinds of drugs can affect an unborn infant. Do not misunderstand: toxic substances, whether legal, prescription, or illicit, are best avoided by pregnant women. But the placenta is much more effective in protecting a fetus from cocaine than from alcohol or many other drugs.


THE NEW YORK SOCIETY FOR THE
SUPPRESSION OF VICE

Sentences for crack were much stiffer than sentences for cocaine hydrochloride: a gram of crack was considered one hundred times more dangerous than a gram of coke and was given a proportionately longer sentence—that is, you got the same sentence for one gram of crack as for one hundred grams of cocaine. In reality, since Freeway Rick figured out how to triple his profits by adulterating his crack with lidocaine (a known carcinogen), there probably was more cocaine in a gram of hydrochloride salt than in a gram of crack.

Ross was finally busted in 1987 by the LAPD. The detectives paid Rick a visit in his jail cell and bragged about how they had set him up, how much time he would do, and how they'd beaten up his brother. The conversation was tape recorded, and when a judge heard it, he threw out the case. Ricky decided it was time to go straight and moved to Cincinnati, but Blandón tracked him down and eventually persuaded him to return to the business. Ricky did, and was arrested again a year later. This time the cops beat him up on the spot, and, again, it was their undoing. The FBI called on Ricky to be a star witness in an investigation of corruption in the Los Angeles Police Department. The investigation uncovered that the police beat suspects, sold confiscated drugs, planted drugs on suspects they wished to arrest, laundered money, and evaded paying their income taxes. In exchange for his testimony and cooperation, Ricky Ross's sentence was cut from ten years to fifty-one months, and after a year in prison he was released.

Ricky again vowed to go straight. He'd used his jail time to learn to read and write and had obtained his high school equivalency certificate. He used his money, his reputation, and his properties to set up youth centers and other neighborhood and community services in South-Central LA. Rick even got a job. But the DEA wasn't through with him. They had been able to turn Blandón into an informant, after arresting him on cocaine charges that he probably could have beaten. Blandón looked up his old protégé, gave him a hard luck story about how he needed money to pay off an old debt to some Colombians, and convinced Ricky to run a deal with him. Blandón set up a sting using DEA cocaine, and Rick Ross was given life without hope of parole.

The Ally

And so, the young man is seated,
he chews the coca leaves,
he knows how to toast the coca,
he knows how to strain the coca,
he knows how to pound the coca,
he knows how to speak.
He grows up like his father,
he searches,
and what he searches he finds.
Such was the good word in former times,
the word of coca and the word of tobacco.

—Hipólito Candre (Witoto), The Word of Discipline

The War

A decade ago, poet Peter Dale Scott predicted that the war on drugs would be used as an excuse for military intervention in South America. The passage of a military aid package for Colombia in the year 2000 for more than a billion dollars fulfilled his prediction. Perhaps the most sinister twist was a proposal to use the dangerous Fusarium fungus as biological warfare to kill coca, poppy, and marijuana plants. The plan is to infect grass seeds with the fungus, which then could be dropped from high altitude planes. The grass would then spread the infection to the crop plants. The fungus can survive in the soil for as long as five years.

As Noam Chomsky points out, many more people die in Colombia from American drugs than die in America from Colombian drugs. Does this give Colombia the right to make air strikes in Kentucky and Virginia?

Signatures

> *"Which is it today," I asked, "morphine or cocaine?"*
>
> *He raised his eyes languidly from the old black-leather volume which he had opened.*
>
> *"It is cocaine," he said, "a seven-per-cent solution. Would you care to try it? . . . I suppose that its influence is physically a bad one. I find it, however, so transcendently stimulating and clarifying to the mind that its secondary action is a matter of small moment."*
>
> *—Arthur Conan Doyle, The Sign of Four (Watson and Sherlock Holmes)*

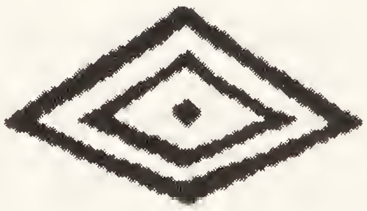
The Plant

The sacred leaves are used for divination in several ways. It is said that witchcraft is a province of *brujos* and *brujas,* but that coca divination is for anyone.

> *One method involves body twitching. A large quantity of coca is ingested and a bundle of the leaves is brushed over different parts of the body—over the calves, parts of the calves, placing the questions on different parts of the calves and watching to see which parts twitch.*

Other methods involve the leaves themselves. The easiest way is just to throw the leaves onto a blanket: the answers are in the positions and alignment of the leaves. Sometimes the leaves are crumbled in the hand.

Another method uses the quid. A chewed leaf is pulled out by the stem and the querent studies the shape of the veins. One coquero divines by the bitterness of the quid: a bitter taste denoting a negative answer and a sweet taste indicating a positive answer.



EYE OF THE
MEDICINE MAN

The Ally

So, it is said that
when a young man, for the first time,
chews coca,
and prepares tobacco,
he
prepares it watchfully
and he talks, alone, to his father.
"I want to learn all that there is in the heart of the Wise One," he says,
"I want to learn the spells of life that are in the heart of the Wise One."
Well then, the father tells him,
"If you sit down, if you stay watchful, then you will feel it."

Well then,
the one who chews coca for the first time
truly believes in that,
because he wants to learn about that.
Well then, he works the tobacco, he works the coca;
and once he has his own plants of tobacco and coca,
now he searches.
He searches, and with those two
he gets drunk,
because it is said that these teachings are in the heart of the Wise One.
Well then, with that, he keeps chewing,
he keeps getting drunk with tobacco.

Out of the forbidden place,
truly now, I obtained this word,
and today I am relating it this way.
And he who does not know says it is not true;
he might say so, but this word has power, has substance,
has breath—
these are Things of power.
And it might seem
that one is a sorcerer,
that one has supernatural abilities,
it is just the word of the discipline of coca,
the word of the discipline of tobacco.

So that later,
when your children are born, you can tell them.

—Hipólito Candre (Witoto), How We Were Formed
by the Word of Tobacco and Coca

STEALING FROM TOMORROW

A peculiar clean taste, slightly chemical, but not unpleasant. Once you taste it you'll never forget. Nothing else quite like it. Treble notes. Trace of metallic, trace of bitter. Tongue numb. Maybe it's what sweet would be without sugar.

Seems like a convenient mode of ingestion for small quantities.

Keep wanting
to get back
to where things were clear.

"So good that if you use it once you're hooked." Talk about good advertising! Did the cartels pay for that line?

◆

The free amine base is simply prepared by basifying. The rule of thumb that alkaloid salts are water soluble and the bases oil soluble holds well for cocaine. A few drops of ammonia in an aqueous solution of the salt precipitates the base. Extract the base with petroleum ether (not diethyl ether) or naphtha.

Add a layer of the solvent, cap the container, and shake: when the solution turns clear the precipitated base has dissolved in the solvent layer. Draw off the solvent layer with a pipette (like, an eyedropper) and squeeze into a wide, flat-bottomed dish to evaporate off the solvent. The crystals are quite beautiful.

This much is well documented.

The first flash is the best. Never
quite that good
after.

The fleeting quality of the hit . . . how an interruption, a word or request from someone else, the telephone ringing, your spouse wondering about the shopping, any outside engagement can dispel the brief enchantment.

So you try to avoid the interactions.

You go again, but as the metabolic half-life of the coke far outlasts the duration of the rush, the stimulant continues to build up in your system. So you need a downer. Something to take the edge off. Some way to get leveled.

We're talking poisons here. But poisons going nowhere.

But you do it some more. We can call it an Experiment.

Finally you do it even when you don't like what it does to you. You get too much edge. You get too many jaggies. So maybe you take something to take the edge off. Speedballing. Except maybe you take slightly more than you needed because you wanted to feel it and now you are drowsy, so you toke some more crack, or base. That puts you too far on the stimulated side, so you try the cycle again. Eventually you get leveled.

Brain won't work. Too jumpy to read. Too bored to do nothing.
Toke.

Plenty late enough to go to bed. Just one more hit. Just one more lift. Maybe a small one this time.

Small one didn't do it.

Siren,
you hide your pain in the blinding whiteness
of your crystals. You hide the night.
Already I can feel it: tasks undone,
papers left scattered. A slow accumulation
of flotsam. Or a word too sharply spoken.
A craving that calls me, through any job or meeting,
during an evening with friends,
from my bed where I went thinking to sleep.
So quickly she makes her bed in your ear,
but she is not the singer, she
bringeth not the lyre, but the lie.

◆

To keep the vapor
from condensing in the stem
I warm it first,

moving the pipe
back and forth slowly
over the flame

trying to heat
the whole pipe
evenly.

Brushing the long stem with a flame must be the lightest way to touch something. It's like polishing, or cleaning.

You can see the spots
that haven't gotten hot enough
from the crud and stuff
in the pipe. Stroke
the bowl a few times
and then come back
to the stem, twist
a little left or right
to try to get
the sides. Wait till
it's all hot to
put the sustained
heat to the bowl.

I like to see
the crystals melt
before emptying out
my lungs, exhaling, then
three or four
final stem passes,
back to the bowl
and inhale slowly, you want
that vapor to hit
the bottom of your lungs, pal,
then hold it in,
and hold, or even when
you can't anymore just
breathe shallow.

The flame is like a brush. It bends when I move the lamp. I can bring the lamp around and along the stem and the flame tip follows precisely, always a little bit behind.

like a tongue tip, lightly licking all along it.

You love it. You want to do it again and
morning comes again and ever
so closer and ever and
I still haven't slept.

◑

If I could just find some activity that didn't require concentration.

Morning is morning, but now is now. Should quit this stuff soon.

Freebase is the hardest substance to leave in the cupboard that I know of. That doesn't mean you can't quit, you can. But you're going to have to leave town.

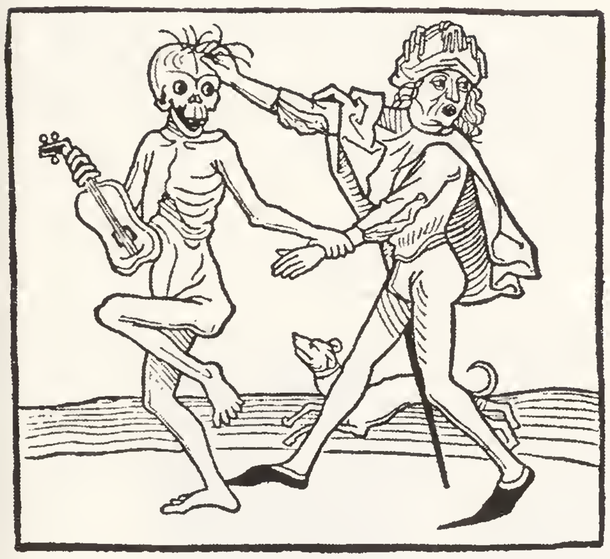
Buying in small quantities is safest.

No. There IS no "safest."

Coke can overpower the Critic, but in whose service? It can put aggression on auto-pilot, a much-valued state of mind in our culture, but in whose service?

◆

It turns out that stealing from tomorrow is just the first stage.



DEATH AND THE GENTLEMAN, H. KNOBLOCHZER, 1490

Stealing from tomorrow is like going into debt, spending tomorrow today, or tonight, actually. So you've wrecked tomorrow. Stolen all of its energy, stolen its waking hours, stolen its good will. Tomorrow you will be behind all day.

If you get up at all!

After stealing from tomorrow for long enough,

weeks, maybe for months,

you start stealing from today.

Stealing from today means that the ally is not giving you power or aid or assistance in accomplishing some task. Rather, the ally takes today for her own service. Ingestion, filling the bowl, the preparation, the scoring. And just the time taking the hits. A little bit of time to space, to flash or level, and that's about it for today.

Just the worship service.

Weren't you supposed to get something from all of this?

You're doing your part for her. That's for DAMN sure!

But you're not at the end.

Next is stealing from yesterday.

The third stage of the ally's conquest.

Your savings, your bank accounts—nothing very esoteric there.

Sometimes your friends. Sometimes your marriage.

Sometimes your children.

Your reputation.

And your memories.

Nothing very esoteric there.

◑

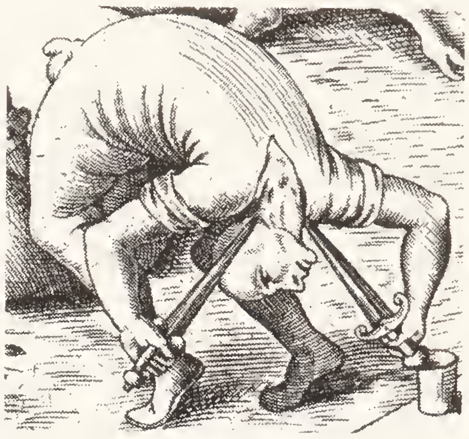
Perhaps the best writing on the effects of cocaine is by David Lenson in his book *On Drugs*. Lenson writes about the "runaway engines of desire." He suggests that the American power structures reacted with such intensity and virulence against cocaine because cocaine presents such a clear image and parody of consumerism. You buy it, it's gone, more makes you want to buy more. But buying cocaine is buying the desire itself, the desire itself is the product. A devilish perfection.

The desire, the consumerism, is too blatant, too obvious: a parody of the holy rite, and hence condemned with all the fury of the Inquisition.

> *A citizen set fire to a house because it was a "crack house." Though he admitted setting the fire, the jury found him not guilty, using jury annulment: an auto-da-fé for the Holy Cause is not crime.*

◑

THE CONQUEROR WORM,
FRANTISEK KUPKA, C.1900



THE FALL OF THE MAGICIAN (DETAIL), BRUEGEL, 1564

The hard part.

You do it instead of eating.
You do it instead of sleeping.
You do it instead of doing.

The hard part.
is stopping, sitting down.
The hard part,
the hard part concerns time.
The hard part is just sitting,
without inspiration,
with no ideas and not knowing . . .

No, that's not it. Lots of ideas.
The hard part is doing it.
And there is so much to do:
much more than you have time to do.
It's easier to keep the accelerator pressed
and to keep rushing, touching this, touching that,
and to keep doing that.

The hard part is quitting.

Clear enough?

◑

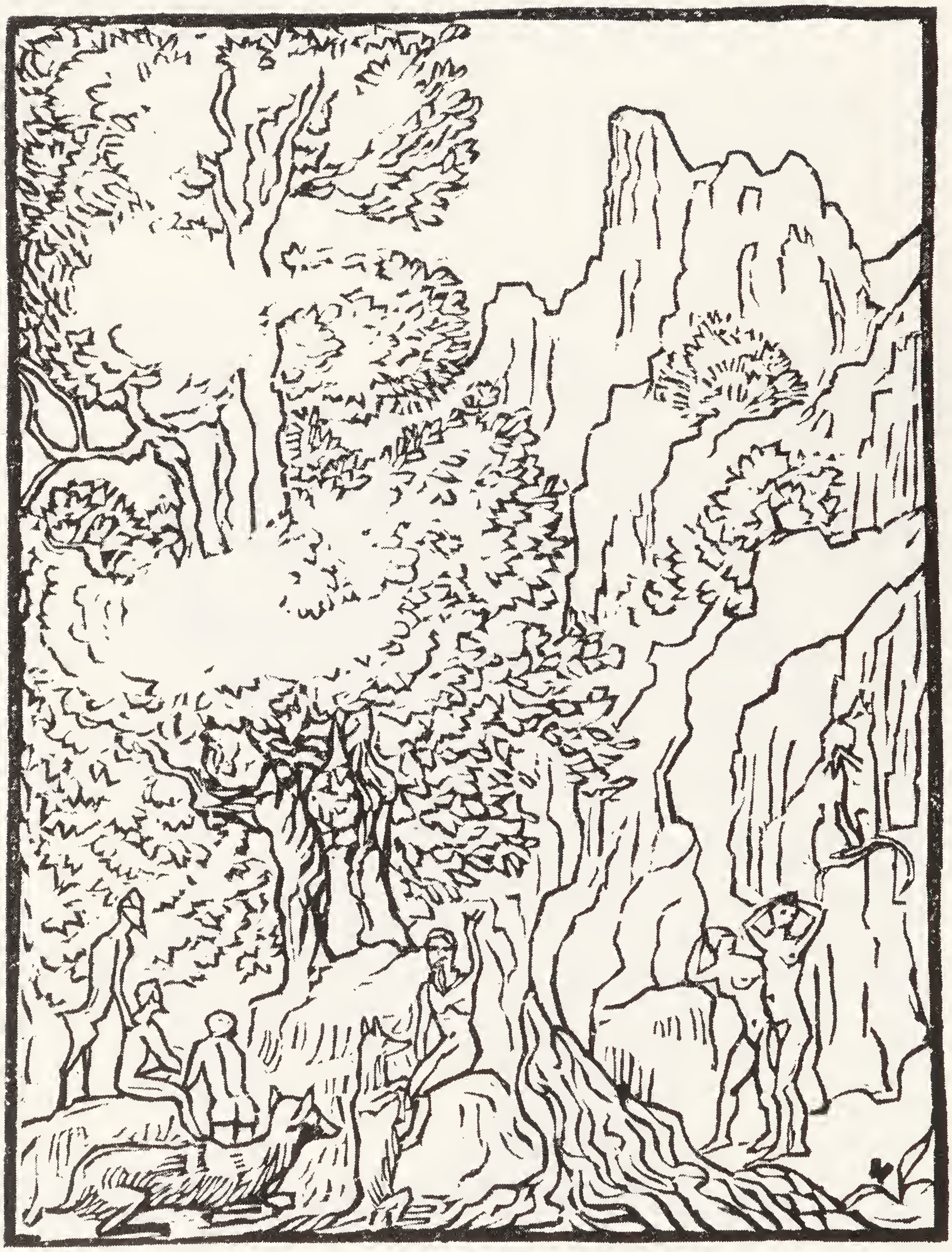
Dopamine levels crash during withdrawal. A dopamine agonist of the D2 receptor attenuated withdrawal symptoms in mice, while an agonist aimed at the D1 receptor made withdrawal pains worse.

Another researcher said that both agonists and antagonists block the ill effects of craving: so that it is a change in the firing patterns that creates the unrest, not a simple decrease.

The hard part.

> *It is also true that anyone who has used stimulants may learn from the experience, although this knowledge may be distressing. A kind of wisdom can be gained from witnessing the voracity of human desire at its uttermost, and from understanding one's own fundamental corruptibility in the face of it.*
>
> *—David Lenson, On Drugs*

There is a spring. It comes out of the rocks on a high ridge dividing two great watersheds. The water is very cold and is pure beyond any other. It may be the only thing in the world that is not poison. It is surely the only thing in the world that can save your life. I'm not going to tell you where it is, but you know how to find it.



ARISTIDE MAILLOL, 1926

WANDERING AND THE VISION QUEST

SHAMAN, C.1700,

> *I want to speak now of a certain curious phenomenon found among the Pit River Indians. The Indians refer to it in English as "wandering." They say of a certain man, "He is wandering," or "He has started to wander." It would seem that under certain conditions of mental stress an individual finds life in his accustomed surroundings impossible to bear. Such a man starts to wander . . .*
>
> *He will speak of what is on his mind to no one, but anyone can see that he is not all right. He is morose, uncommunicative. Without any warning he will get up and go. People will probably say of such a man: "He has lost his shadow."*
>
> *Wandering is something that may unfortunately befall any man or woman, and it can take many, many forms. It may end up in complete loss of soul, and lingering death. Or it may result in temporary madness.*
>
> *To [the wanderer], the mysterious powers, the Tinihowis, (we might call them genii) are whimsical spirits living in the woods and entirely indifferent to the affairs of the Pit River Valley. In order to gain their friendship, in order to approach them without scaring them away it is necessary to become wild oneself, it is necessary to lose one's own humanhood and become as wild as possible, as crazy as possible. Haunt lonely, desolate places. Act like a madman, throw rocks about, yell and dance like a maniac, run away when anybody comes. Climb awful mountains, climb down the rim of crater lakes, jump into the silent cold water, spend all night there.*
>
> *When you have become quite wild, then perhaps some of the wild things will come to take a look at you, and one of them may perhaps take a fancy to you, not because you are suffering and cold, but simply because he happens to like your looks. When this happens the wandering is over, and the Indian becomes a shaman.*
>
> *—Jaime de Angulo*

Sometimes you can't afford to wait until you are ready. Sometimes you just have to go. Sometimes it is like you are treading, just treading water and getting tired. Sometimes you just gotta go.

> *When I got into my car and took off down the road, I gave no thought to returning. I had reached a point where desperation overshadowed responsibilities.*
>
> *—Steven Foster*

You can't wait. If you were ready why would you need to go? I mean who is ever "ready," really? If everyone waited until he was ready, no one would ever go.

Maybe the readiness is the going. Or the going is the ripeness and the goneness is the readiness. Either way that's all,

he wrote.

◆

Two more miles of sawtooth ridge—
an hour of sunlight
to reach the lake

Sweating from every pore. Started too late, much too late.
Didn't leave any margin.
It got hard. Sun started setting.
But made the lake, finally, at dusk.
Dropped my pack, threw off my clothes, dove in.
Ice.

A war cry helps.

Heya Ho! It is a good day to die.

Something to help get over the energy barrier. Or the barricade.

Chickamauga!

Glacier lake, into the lake.
The Waters of Life.
Wash away the day, many days. How many days?
No towel. Goose-bumps.
Climb back up the hill to make camp in the last of the light.

And alone. The quiet.
A trout jumped.
Thought of Nick Adams.

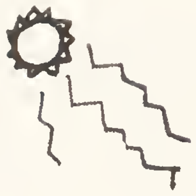
and that was
a long, a very long time ago.

Old friends begin returning.

◆

There are two vision quests: the young person's quest for identity and passage into the world of adults. And then another in mid-life, for the healer or singer, for the rattle-woman.

For the desperado.



The second one is different.

Red fir belt.
Ground cover dry, even the buckwheat
pink and crisped.

Exhaustion is part of it. Four days of writhing and weeping:

sweating poison,
the coke and the junk,
whatever you've collected—
the anger, or the booze,
the pain, the broken heart,
from your mourning, moon-child,
from your grieving—
sweat it—
welcome the long night,
and with the dawn rub ashes
into your hair.

IVORY DOG-SLED HANDLE, BERING SEA ESKIMO, 1870

Mere convalescence won't cure it. Something must be risked.

Now you find out if you have luck—if you have nurtured it back into friendships the past twenty years or so—or whether you squandered. Whether there is enough muscle left in your legs and enough breath left in your lungs. Luck is a habitual kind of thing.

Bear is here. In the east. With the moon on her back.

Can't sleep. Every thought that I'd ever thought came by one more time and waved "hello." The moon came up. The air is warm enough. Naked. Put shoes on. Go.

I'm too old
to spend a sleepless night
alone on a moonlit
mountaintop.

I want that bear.

◆

There are three parts to the Quest here: power, vision, and confirmation.

The power part is about strength: returning to the body, cleansing, rebuilding muscles, sharpening reactions and coordination; recovering your wind and your endurance, your inner strength and your confidence.

Finding the lost songs and singing them;

Re-establishing a relationship with the sun.
With rock. With cold mountain water.
With something wild.
This part you do alone.

Rough granite.
Frog jumping.
Splash splashing.

◑

Nothing against rainbows, but when I go, I want to get out. There. Man. I want the edges and beyond the edges. Deep space. Blackness and cold. Absolute zero, and supraluminal velocity. It's that all this human stuff has been radiating out there for a long time now, so you have to go a long ways to get past it: linguistic stuff, stories, songs maybe, further, then just chanting, or trip-play, wordy curlicues and pun-fun, further, just the drums there, and, further, the deep space beyond.

Beyond.

Maybe vaguely threatening, elementals: galaxies still in formation, stars birthing—where thoughts come from—a holographic untwining, particles forming—keep going—glimpse the Great Black Hole, from whence nothing returns.

Go for it.

Through the Hole and beyond. Forms becoming. Implicate unfolding.

◑

The second part is the vision part: the journey to the heart of delusion. The vision part is to recover what was lost:

lost laughter, lost feelings, lost love, forgotten prescience, forgotten luminosity—

looking for something
kind of like a cross
between a mammal
and a blue-white star

You have to create an opening for the new.
You renew your affair with the moon.
This part you do with others.

Feeling your lost song, and singing it.

This part is on the beach, a small fire—now mostly coals. We pull the blankets around us.

Through. Formless.

A nightbird calls, scolding, or maybe hurt.
Textures: damp sand, warm skin.
Dreams and dancing.
Realms of body, skeletal structure, bone and ligament.

All the eight bodily secretions. Sticky stuff and coarse stuff and dry stuff and slimy stuff. The Realm of Warm Bodies.

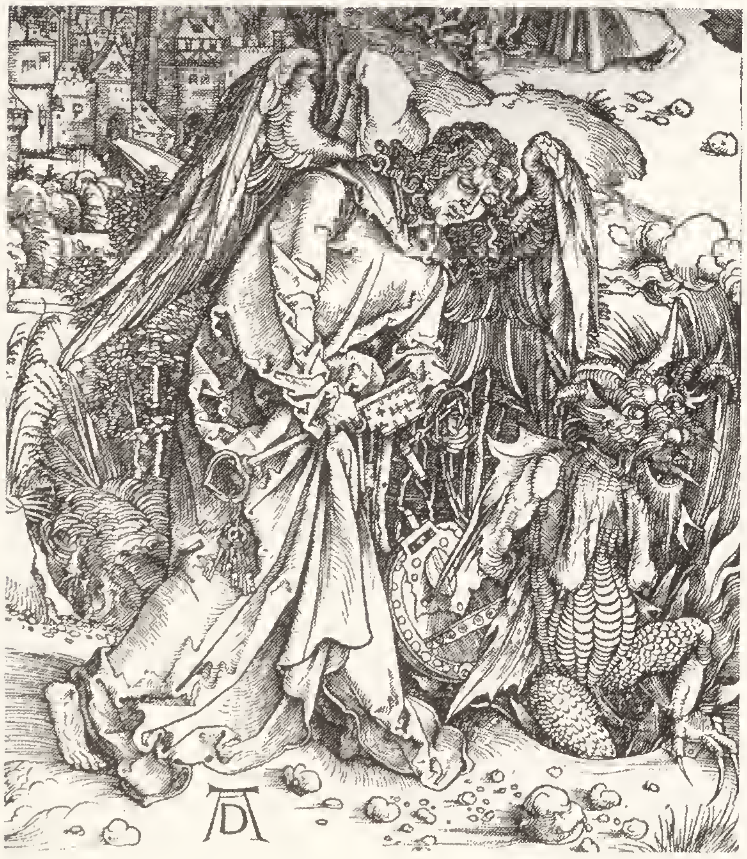
Further.

The Realm of Coarse and Dry Things.

Further.

It's ok to be scared, just keep going, discarding, letting go, lightening your load. Diving towards zero.

Here there be Dragouns.



DÜRER, 1498

The dragons that guard treasure.

They have a distinctive odor.
Be quick to it.

Space, silence, the talking stops. Bottomless Pit.

An angel passes.

Further, further. Driven. A kind of spiritual greed: a hunger for transcendence that borders on lust.

Your young men shall see visions.

Flipping, combining, mixing. Oliver Twist with his hand out asking for another dose.

What is it we are seeking?

It.

The It. That It. This It.

The it that's at. Where It is at. Wasn't that the point?

A power, a poison. Lucifer must have had it, to have grasped for the throne.

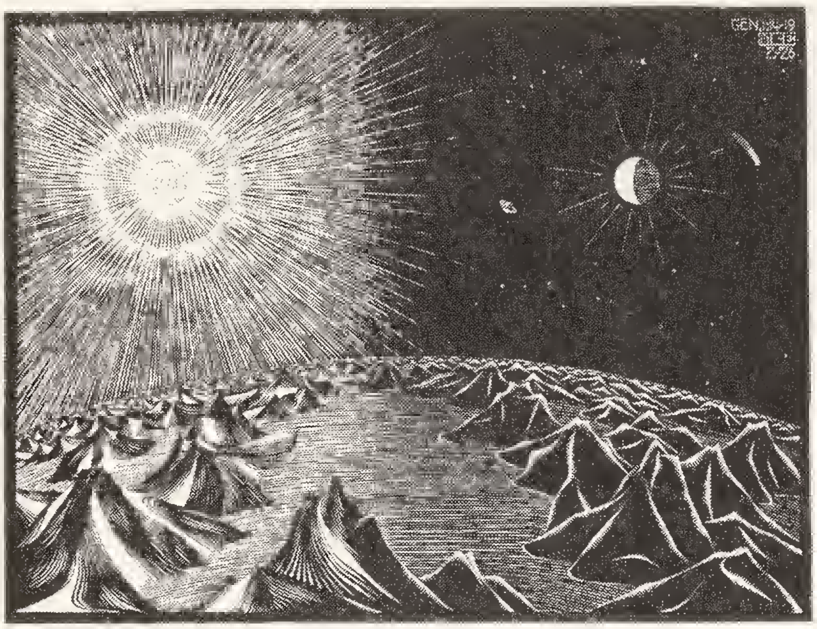
I don't want power. I want peace.

But when you are on the shore, why take the outboard off and carry it on your back?

◆

Down at the lake saw the real moon.
The one in the sky is reflection.
Li Po . . . grinning.

Geometry takes over, not the thing but the relationship, the pattern, that this is like that because this difference is like that difference. Pure pattern, and then the possibility of pattern. Speed increasing, boosters firing, escape velocity.



ESCHER, 1921

Further, freaking, losing it, point of no return just whooshed by, on the left, the seed orgasm beginning, taking hold, bye-bye, bye-bye,

My God! Who could have imagined?

I saw the distant peaks and barren ridges of a desert land. Above a nameless canyon, a raven cut out from the night shadow of death coiled in the wind. In the canyon below was a man, his shoulder hunched against a great, unmoving wall of stone, his tin cup filling with a faint seeping trickle of cool spring water. In such a wild, thirsty land he might have been any man, seeking to stay alive. He happened to be me.

—Steven Foster

Close call today. Didn't bring enough water. And the whole second half was scrambling uphill. Finally slowed, exhausted, to stop and go: walking three minutes, resting two. By LUCK, found a tiny snow patch on a north face. Scaled up the talus and dug out a pocket with my sheath knife; filled my bottle dropwise. I'd been without water several hours, and was pretty dehydrated: I could feel my feet and legs getting sloppy, missing footholds, and ready to turn an ankle.

Drank the snowmelt and started laughing. Got to camp with the sun still on the lake.

He laughed, touched the rope, and set the pulley to working.

—Antoine de St. Exupery

By five had bathed in the lake, washed my clothes, rested, drunk water, cup of hot chocolate. Lounged around with the ants on a pile of Jeffrey pine bark.

Water spirit feelin' springin' round my head,
Makes me feel glad that I'm not dead.

—Jim Pepper

There had been cicadas crackling in the heat as I made my way across the granite.

◆

The third part is yogic: ground state calibration,
centering, practice;
returning, coming home,
settling, silence, tranquillity—
mind like
flashing knives in a blur,
an arrow in flight,
or the croak of a frog:

exchanges of emptiness, presenting the Fact.

Embodying your song, being it.

This part you do with your teacher.

◆

It's not that we like deep space—it's more like a predilection, like a natal chart or something.

Or a disease.

Maybe some are born contrary, twisting widdershins against the flow—

a raven croaks—
then after
just the wind.

Go further.
Come to rest.
Go further.

◆

Tung-shan asked a monk, "Where have you come from?"
"From wandering in the mountains," the monk said.

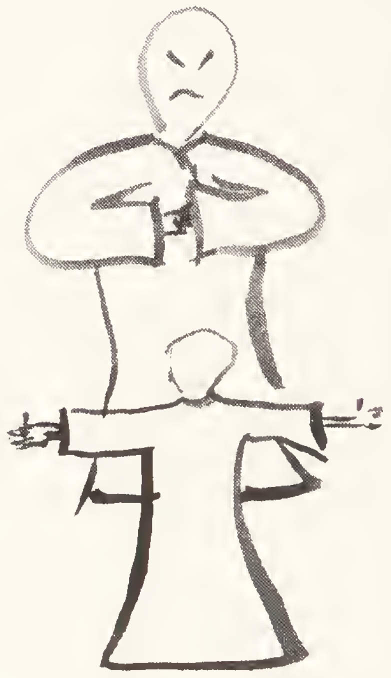
Yes. Yes. Yes.

"Did you go to the top of any mountain?"
asked the Master.

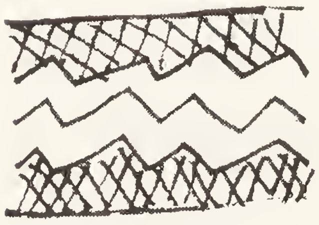
He's testing.

"Yes, I did," the monk replied.

Confidence.



TUNG-SHAN EXAMINES A MONK CLAIMING TO HAVE REACHED THE TOP OF A MOUNTAIN



The whole day was hard hiking. I wanted to find that pool near Lower Lake where I'd seen Grace swim once—her lithe body slipping through the water—kind of a pilgrimage—not because it was something special but because it was something ordinary.

It took about three hours but I found the pool, the falls at one end and bedrock visible twenty or thirty feet below the clear water. Swam. It was colder than Glacier Lake. A lot colder.

Near the creek,
looked like a place
a snake might be.
It was.

Old friends begin returning.

Textures of rock, weathering. Resinous incense. Heavy brush.

What we forget is that the engagement is total. You can't just do it with part of yourself. Your whole life is at issue here.

Your soul. To speak poetically.

Do you want freedom or not? Can you commit to your true ally? Do you want freedom or not?

◆

Come to rest.
Come to rest.

What's beyond that?

Dunno. Substituted tryptamines? The Path of the Rose?

Monday, man. Monday's what is beyond that.

Oh yeah. Forgot about that.

Glide. Chill.

◆

And around a bend, a reservoir of anger seething like magma, like a lake of molten rock. All the impotent rage and pain. Your very own delinquent children.

You have to love all of it.

Oh please, not more hippie stuff.

No. You can do it. You can do it.

◑

Space. Warm space. Inside space.
Under-the-blankets-space.

Mammalian spaces. We creatures with fur.

> *We creatures with metal.*
> *(Put my hand there.)*

Warm places. Sexy places.

* * *

Fourth day took off early. Pack a little lighter. Climbed the Butte and stayed on top about an hour. Identified the surrounding peaks while I ate—compass readings, old Forestry map. Headed west crosscountry. Mistake.

Again, all further, steeper, harder than it looked. Brushfields: scrub oak and snow brush, ceanothus, kinnikinnick, bitter cherry along the ridge. Only alternative the loose scree—the downhill tiring my legs quickly.

So much of it is just trailcraft.

> *The trail is older than the Path.*

So much of it is just woodcraft.

Stopped short by a lone hemlock with a naked hoary trunk, all the foliage, blue needles, in horizontal sprays from the bottom, like it was water blown into waves by the wind.

> *Blue needles, fifty years of wind*
> *frozen into crests.*

◑

> *"Was there anyone at the top?" asked the Master.*

> *"No, there wasn't," said the monk.*

One leg made it, one didn't.

> *"In that case, you didn't reach the top," said the Master.*

Aw, gimmeabreak.

Prickly phlox, a choir of butterflies, and Maitreya, sitting on Vulture Needle itself.

"If it were the case that I hadn't reached the top, how could I know there was no one there?" responded the monk.

Indeed.

"Why didn't you stay a while?" asked the Master.

"I wasn't opposed to staying, but there is one in India who wouldn't permit it."

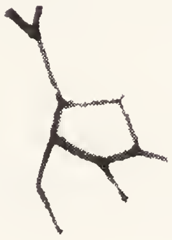
Still carrying his pack, but a good fit.

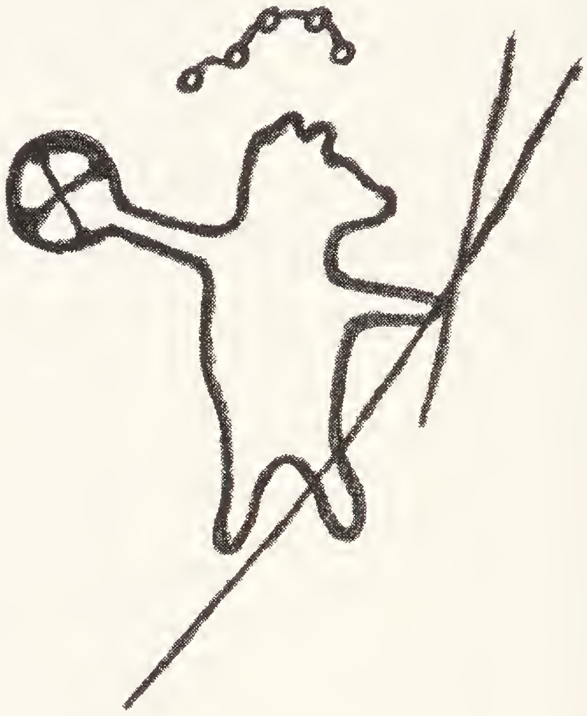
"I've been suspicious of this fellow from the first," the Master said.

—The Record of Tung-shan

Copse of fir. Spiraea in a shady grotto. Phlox on the rock, ten yards of gentians tucked into an overhang.

A place not densely wooded.





Didn't stop. Found the petroglyphs in mid-afternoon. Old ones, just barely distinguishable from the natural veins and weathering on the granite. It was all beginning to swirl.

Five circles, with lines connecting them. The lakes, perhaps.

Then saw the bear doctor. Bear's head and ears, standing up holding a drum in one raised hand. Several strong vertical lines, diagonal, a lance perhaps, in the other hand.

The power. That's the power entering.
She's called to her luck, her poisons,
she whistled for them and they've come.

Figured then there might be water near. Went looking for a spring. A few hundred feet up and over the knoll found the water-stones. Brilliant white, creamy, a faint green glow, the surface glistening, wet-like, in the hot dust. Just flakes and shards, they weren't working the edges—this is not tool-making stone.

Another hundred yards found a lake. Not a little pond or cirque, but a real lake, deep, blue, and wide. Very wide. And it's Labor Day weekend and there is no one here.

Songs begin returning.
Friends are here. Friends have come.

◑

The moon rose an hour before sunrise. Some chanting. Some singing. All of us still huddling and giggling—Julia talking about blowjobs, the Milky Way pulsing and glowing—frozen light through the eons of space.

This is as good as it gets, she said.

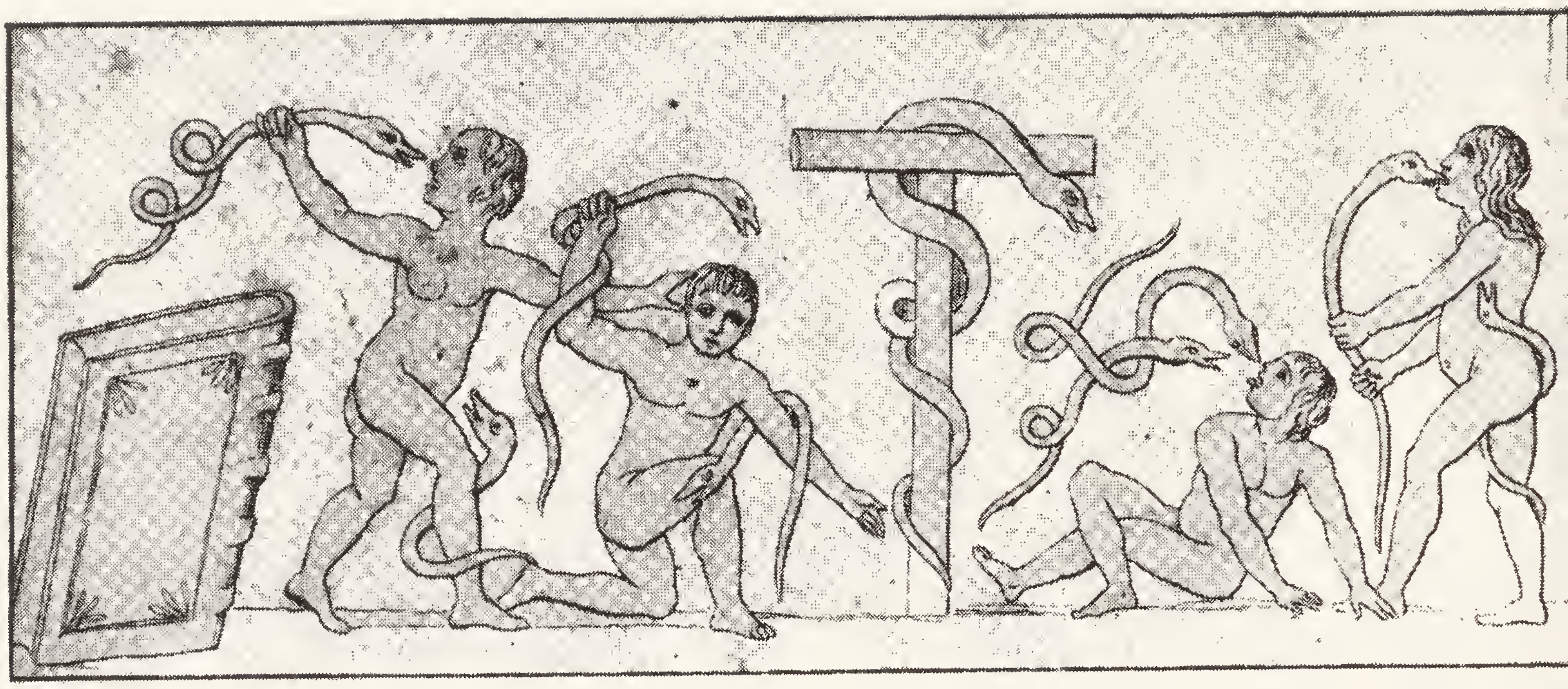
Right. Four bodies huddling together, a tiny pile on a wide black beach. Somewhere near the edge of the world.

It is because it is so obvious that we don't see it.

It is because we are swimming in it that we miss it.

Yes, she said,

Oh, yes.



SERPENT AS BOTH PLAGUE AND SAVIOR—GNOSTIC DESIGN

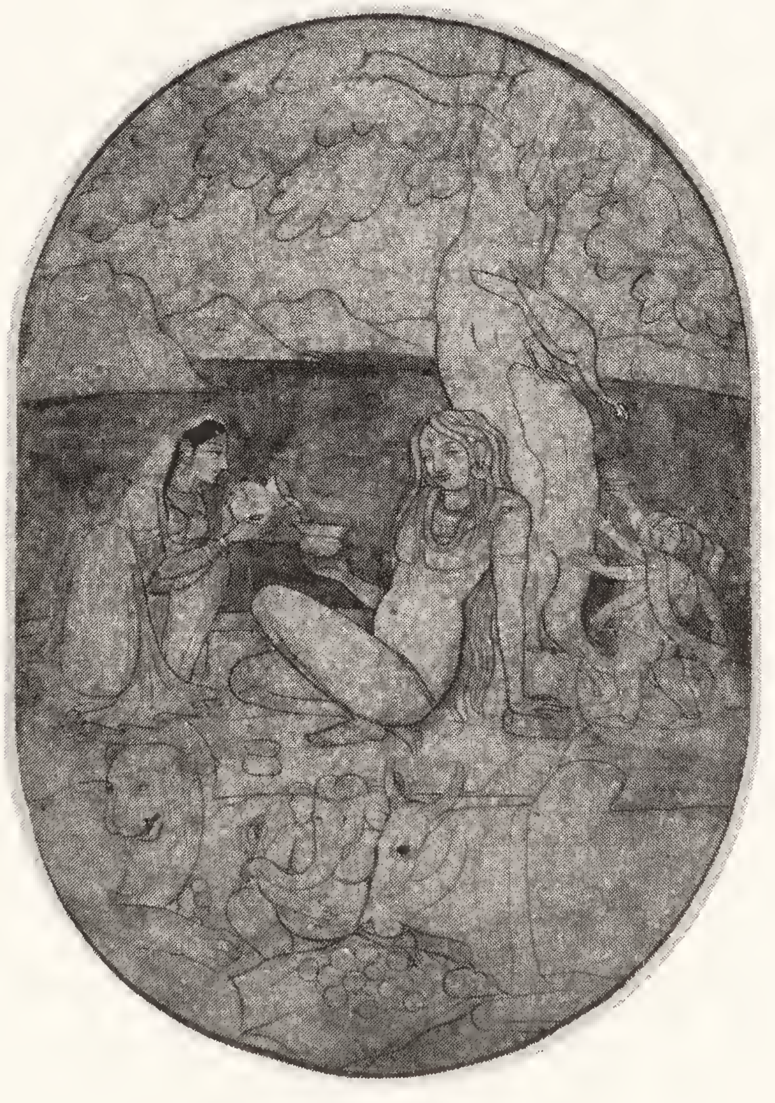
CLEANSING THE TEMPLE

Once the ink is ground, sitting patiently with the mantis, absorbing its movements and rhythms, feeling completely the mind of mantis—before reaching for the brush.

Our home square. Our particularly mammalian heritage. We just forget, until a wild eye reminds us. A voice, perhaps plaintive.

That there is enough pain in the world already. That I hear you, my brother. That I can feel that.

Empathy. Our natural condition. Our home square. It's that simple. We lay together, huddled, relaxed. The cats come over and join the pile.

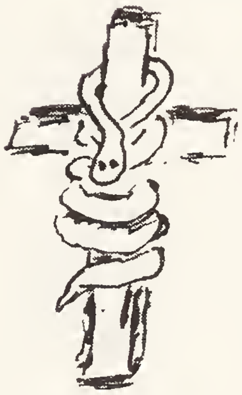


THE HOLY FAMILY

Later we wander out, arms linked, find the church, and go in.

Suddenly everyone is moving, dancing, the trance beat, like Jagannatha, rolling over and crushing everything in its path.

Goddess religion. Canaanite girls, the Shulamite maiden. Worshippers of Kali, Shiva, Dionysus, intermingled.



Bronze serpents twist up the pillars of the temple.

Nehushtan, נְחֻשְׁתָּן

the brazen serpent that Moses raised on a cross, from *nâchash,* נחַשׁ, "to hiss, to divine." Or the serpent of Eden.

Hanging out by the altar, Bibles and hymnals stacked beneath a pew. That the Wrath of God needs the Salvation of Love is, at this point, incontrovertible.

Moses comes down and finds everyone dancing. The Golden Calf is really Ganesh, remover of obstacles. Moses breaks the Logos—that written in stone—and stomps off, nursing his anger. The mics pick up the stomping, the DJ samples it and feeds it back, a heavy beat that turns and twists on itself like the serpents wrapped around the pillars. The stomping, yes.

Once again the offer of knowledge. Once again the challenge. To disobey, to reach for that which, the serpent assures us, is not poison. Once again the chance to be more than God's simple playthings. The priestesses are daughters of Eve, the one who dared. The one who shared. The Garden. Apples are everywhere. Eve, the patron (or perhaps matron) saint of the poison path.

Kali turning. Shiva spinning.

Moses descends from the mountain and finds everyone dancing. He breaks the Word, the stone-dead letters, and stomps off. The mics pick him up, the DJ samples it and feeds it back. The stomping, yes. His own dancing.

The Great Machine dance, the Ghost Dance that will end the world. That will bring back the buffalo. That will bring a final reckoning. That will bring in the New Age of Love.

To break the cycle. Of the dancing. Stomping. Dancing.

The Cleansing.

NUTMEG REVERIES, SASSAFRAS SPINS

Or raves. Or soliloquy.

The spice trade. Caravans and trails. Meetings with the upriver people, or chance encounters in the outback. Swapping tobacco, or pituri. Obsidian or steatite. Beads. Stories. Seeds. And psychoactive plants.

At this time we must expand our definition of "psychoactive," that is, what we mean by altering consciousness. Begin a general expansion, beyond the hallucination of objectivity. So that "gastroactive," to coin a term, is a subset of "psychoactive." The aroma people understand this well, as do certain moths.

We could go further, and talk about beads and precious stones. Aldous Huxley did. We could say that the cargo—of beads and spices, woad and hematite, wine jars in a sunken Phoenician ship and soft silks on camels, is the mystical light, that the cargo is wholly one of psychoactive agents.

So essential oils are a bridge, an ancient trade route crossing fuzzy boundaries.

Somewhere along it there is a nitrogen gate.

Common names Nutmeg. Mace. As a spice, nutmeg refers specifically to the fruit kernel. The dried fruit covering (the aril) is called mace.

Taxonomy *Myristica fragrans* is a tree native to the Spice Islands, the Moluccas. The family, the Myristicaceae, includes the *Virola* tree of Amazonia.

Part Used The ground spice, either nutmeg or mace.

How Taken Varies with imagination and circumstance. A usual dose is 1/2 oz. (two tablespoons) to one ounce (around four tablespoons). Some have taken two ounces, or more. Ingestion techniques range from simply washing the powder down with water to mixing it with a milkshake. One user reports that steeping the powder in hot water for an hour, and then straining it off and drinking the tea warm, before the fats and oils precipitate, eliminates the nausea sometimes accompanying ingestion. All of these techniques work some of the time.

Since the activity is in the oils, it seems likely (at least to me) that sublingual absorption might be effective. Betel chewers often add nutmeg to their chopped *Areca* nuts. Tests have shown that whole ground nutmeg or mace is significantly more active than the essential oil alone. This implies that the terpene fraction (mainly pinene) may contribute to the activity, perhaps through aiding absorption. Something analogous to this seems to occur with *Salvia divinorum.*

Class Empathogenica

Effects Hilarity, euphoria, or delirious visions. Some only get a headache. Best if fresh and freshly ground. The oils in old spices oxidize or polymerize into inactive and aesthetically undesirable substances. Many report heaviness of body, color and visual alteration, and audio effects. In Star Trek lingo, spatial-temporal anomalies are common. Short-term memory can reduce to near zero, which might account for some of the inebriant-like humor.

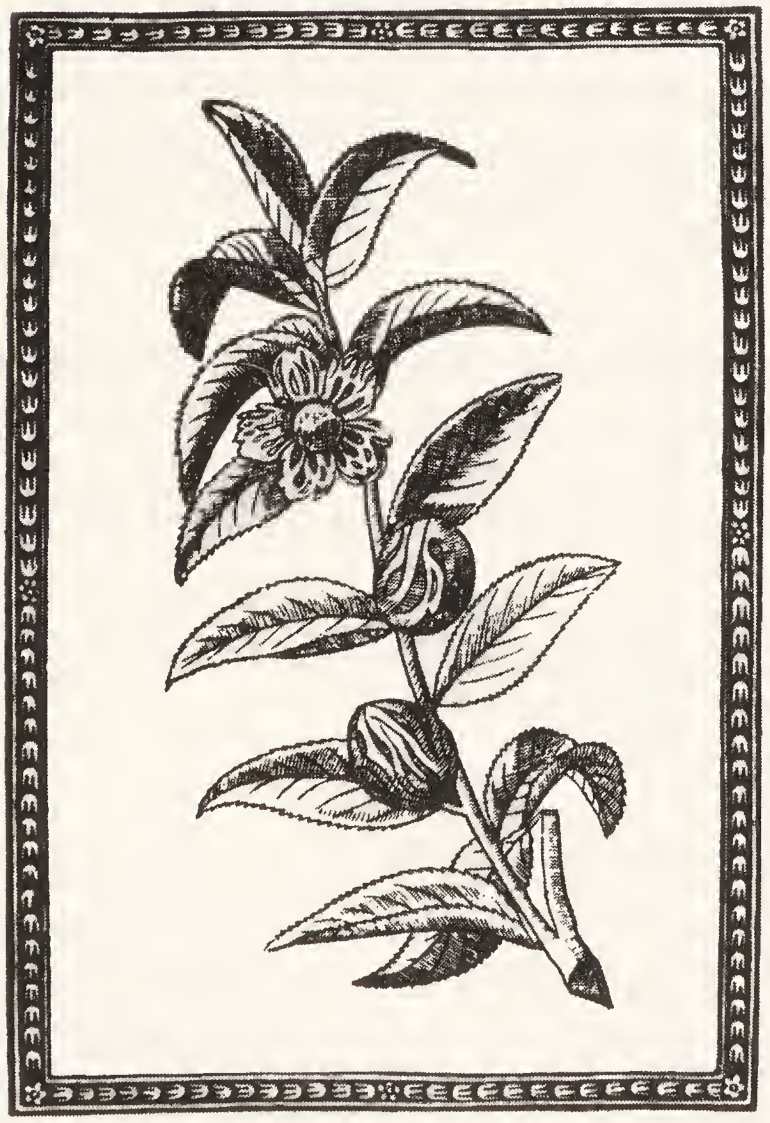
The full effects take several hours to come on and can last well into the next day. In the nodding stage, many report experiences similar to lucid dreaming, sometimes shared.

The Ally The drug-of-last-resort. Myself, I like nutmeg in eggnog.

Pharmacology Oil of nutmeg is around 80 percent terpenes and 12 percent aromatics. The aromatic fraction is composed of myristicin, elemicin, safrole, and trace amounts of eugenol and methyleugenol isomers. The ratio of the various oils varies considerably, East Indian nutmeg and mace being higher in safrole and myristicin, the elemicin content being highest in a West Indian sample (Shulgin et al 1967).

It has been hypothesized that these essential oils are aminized *in vivo* into their corresponding amphetamines, in this case MMDA, MDA, and TMA. Alexander Shulgin calls essential oils with three carbon chains the "essential amphetamines," as they only differ from their phenethylamine reflections by lacking an ammonia group.

Support for this hypothesis is based on a single study by Ulrich Brown at Bonn, who found MDA in chopped rabbit livers that had been dosed with safrole. Opposing this study is a recent German report by Benoni (see Ilex) who found no 4MA in the urine of human subjects ingesting guarana. Shulgin mentions a personal communication from Barfknecht, who claimed to find evidence of amphetamine in rats who had been fed allylbenzene, but I don't believe this finding was ever replicated.



NUTMEG, FROM MATTIOLI'S COMMENTARIES, 1579

OIL	PLANT + NH3	PHENETHYLAMINE
Estragol	chervil (70-80%) tarragon (70-87%) basil (5-87%) fennel (2-7%)	4-MA(4-methoxyamphetamine)
Anethole	anise (80-90%) fennel (52-86%) star anise (75-90%)	4-MA(4-methoxyamphetamine)
Methyleugenol, methylisoeugenol	ginger, cinnamon (major component) snakeroot (36-45%) basil, bay (varies)	3,4-DMA(3,4-dimethoxyamphetamine)
Eugenol, isoeugenol	clove (70-90%) betel (28-90%) W. Indian bay (38-75%) cinnamon leaf (70-90%)	4-hydroxy-3-methoxyamphetamine
Safrole	sassafras (85-90%) cinnamon (70-90% in some spp.) nutmeg, mace(0.5-2%)	MDA
Myristicin	nutmeg, mace (2-10%) parsley (7-30%)	MMDA
Elemicin	nutmeg (1.5-5.5%)	TMA
Asarone	calamus (8-80%)	TMA-2
Apiole	parsley seed (20-80%)	DMMDA

Shulgin bio-assayed a mixture of one hundred milligrams of MDA, TMA, and MMDA in a ratio of 1:2:5, which he called the "pseudo-nutmeg cocktail." This mixture corresponds to the (un-aminized) oils present in five grams of nutmeg, and Shulgin reported "quite a sparkle and considerable eye dilation," more effect than is generally obtained with such a small amount of nutmeg.

While some of this proposed *in vivo* amination may indeed occur, I suspect that more of the psychoactivity is due to some as yet undiscovered mechanism, perhaps analogous to the recently discovered GABA-calcium channel stimulation of thujone. Shulgin (2000) also doubts the *in vivo* amination hypothesis. If such a reaction were really occurring, one would expect to find psychedelic effects from a wide range of oils and spices.

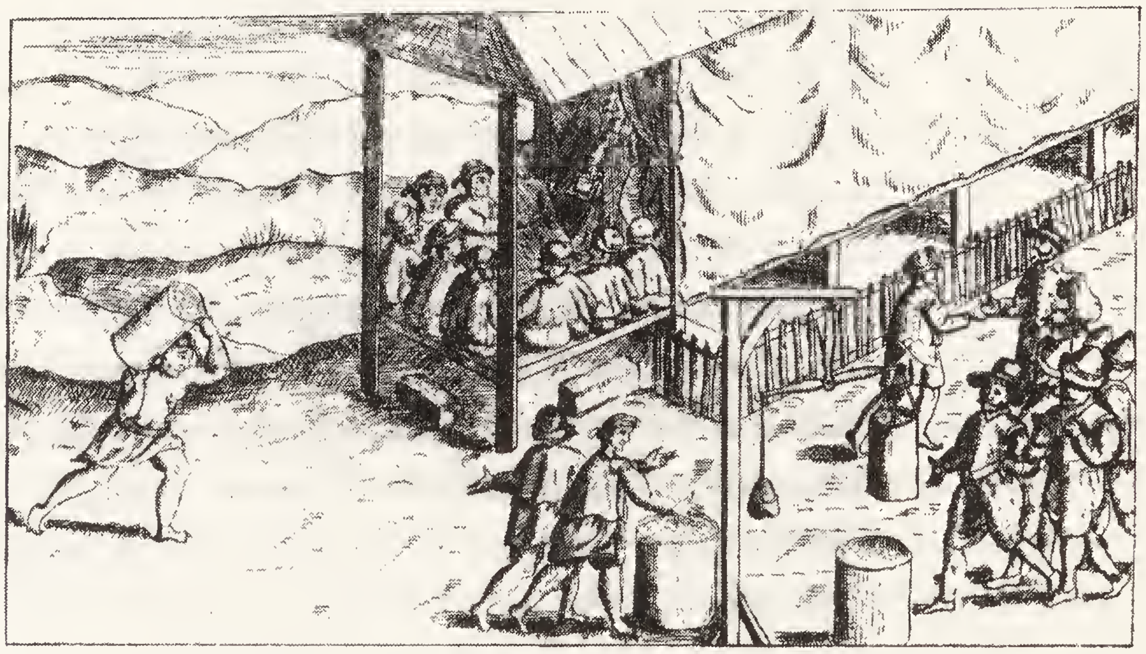
Truitt (1967) found that myristicin has MAOI activity.

Traditional categories for nutmeg include aphrodisiac, astringent, carminative, narcotic, and stimulant (Duke 1985).

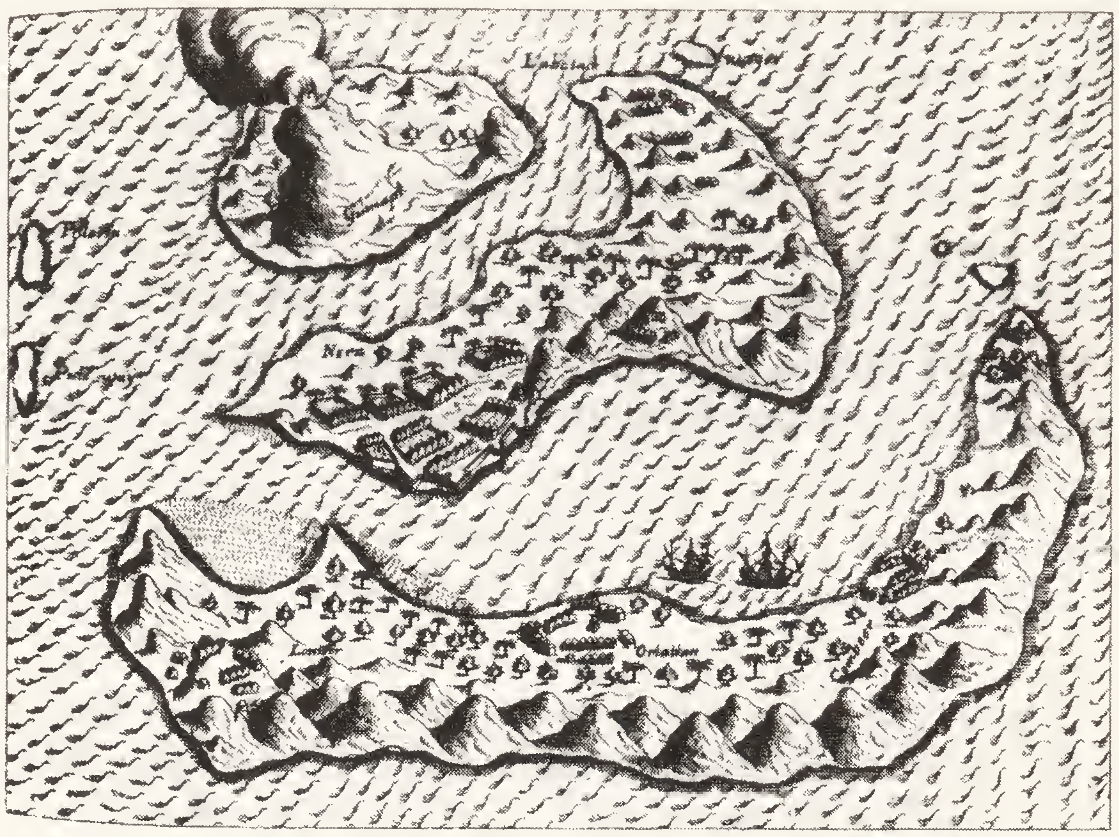
> *Bird introduced this nutmeg to the guys. It was a cheap and legal high. You can take it in milk or Coca-Cola. The grocer across the street came over to the club owner and said, "I know you do all this baking because I sell from 8 to 10 nutmegs a day." And the owner came back and looked at the bandstand and there was a whole pile of nutmeg boxes.*
>
> *—Reisner, Bird: The Legend of Charlie Parker*

In the sixteenth and seventeenth centuries, nutmeg became one of the most valuable items of commerce in the world. In addition to its superior qualities as a preservative for meat, nutmeg was recognized as an aphrodisiac, particularly for aiding male erectile function, as a cure for dysentery, "bloody flux," and, especially, the plague. Renewed interest in herbal medicine, and the difficulty in obtaining spices, raised the price of nutmeg until it was nearly worth its weight in silver.

Through the Middle Ages, the Venetians had a monopoly on the spice trade. They obtained their spices from Arab traders via Constantinople. Where the Arabs obtained them no one knew, except that they came from the East from dangerous lands inhabited by monsters and head-hunting cannibals. Of all the spices, nutmeg was one of the most difficult to procure, as even in the Spice Islands it grew only on an obscure archipelago called the Banda Islands. The Portuguese were the first to break the Venetian monopoly. They first landed in the Banda Islands in 1511, and by midcentury had captured and built forts in Malacca, Amboyna, and other important ports on the spice route by force of arms. They also captured the Muslim port of Goa on the west coast of India. They bought off the claims of King Charles of Spain to the East Indies for 350,000 gold ducats.



NUTMEG TRADERS IN THE BANDA ISLANDS, 1599

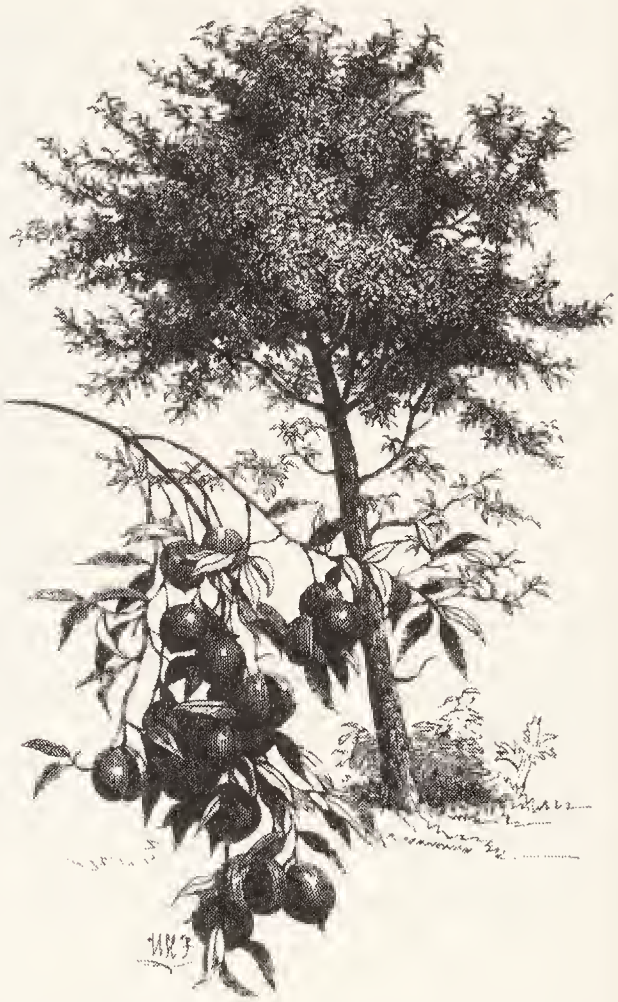


THE BANDA ISLANDS

But by the beginning of the seventeenth century, Dutch fleets, with the English on their heels, were overpowering the Portuguese in the East Indies. The natives were glad to get the Portuguese off of their backs, but they soon found that the Dutch were, if anything, even more unscrupulous. Cannons and terror mixed with treaty and diplomacy for another half-century. The story, admirably told by Giles Milton in *Nathaniel's Nutmeg,* is a tale of intrigue, hardship and death at sea, and murder and torture on land. The balance of power shifted many times between local chiefs, sultans, and kings, and the competing European forces. The Dutch and English took advantage of the many local wars between the various islanders, allying themselves with one side and then another, always trying to improve their own positions.

The tiny Banda Islands, where nutmeg grew, are the most southerly of the Spice Islands and the most treacherous for navigation. By 1603, the Dutch had forts under construction on the main islands. The only island not under their control was the tiny island of Run, less than two miles in length and ten miles from the other islands, which are closely clustered. A group of English mariners and traders were shipwrecked on Run in 1603, and managed to establish cordial relations with the extremely fierce and warlike inhabitants. This was the basis of the English claim to Run, the richest of all the Bandas in nutmeg.

The English were not able to return to Run until 1616, when a resourceful captain of the East India Company named Nathaniel Courthope landed on Run with a small group of men. In the intervening years the Dutch had launched several attacks and invasions of the larger Banda Islands, sometimes with the help of Japanese mercenary pirates. Some of these assaults were successful, ending in bloody massacres of the native inhabitants, in other assaults it was the fierce Bandaese who triumphed. Everywhere the Dutch had made themselves hated by the inhabitants, and the Bandaese were quick to welcome and form an alliance with the English.



NUTMEG TREE

But Courthope and his native allies on Run, the tiniest of the Bandas, were vastly outnumbered by the Dutch forces that attacked him as soon as they learned of his presence on the island. Courthope held out for four years without supplies or reinforcements, again and again refusing Dutch demands for surrender, even when it became clear that no relief was on its way. In 1620, his men sick and hungry, out of money and nearly out of ammunition, Courthope learned that the islanders on Great Banda were poised for a general revolt. Courthope planned to row to Great Banda under cover of darkness to offer aid and leadership to the uprising. A spy relayed his plans to the Dutch. Two Dutch boats trapped him in the narrow straits between the islands and shot him. The Dutch secured their control of the Bandas by massacring most of the rest of the Bandaese, cutting down all the nutmeg trees on Run, and imprisoning Courthope's surviving companions. In 1623 the Dutch imprisoned all of the English on Amboyne and tortured them for days by pouring water down their throats until their bodies were swollen and bulging. They finished them off with further torture by fire and then by drawing and quartering.

Having lost the Spice Islands, The British East India Company concentrated its efforts in India, but the loss of Run and the Amboyne Massacre remained a bitter issue for another thirty-five years. In 1664 a few English ground forces overpowered the Dutch in New Amsterdam. In the peace talks that followed, the English finally gave up their claims to Run, reluctantly agreeing to accept Manhattan Island as compensation.

> *Mental reverie, floating sensations. Sounds were like underwater echoes. With my eyes closed, lots of jaguar images with jagged edges and other atavistic animals. I took 9½ TBSP. For the first three hours it was tactile. Lots of hilarity. Then it became opium-like—legs numb and heavy. It was hard to walk. It lasted twelve hours, with a day and a half of hangover.*

We have elsewhere characterized the war on drugs as a religious war, but we can also see that it has an economic side, that it is a resonant descendant and continuation of the Spice Wars. The alcohol industry has supported, if not instigated, repressive measures taken against rave clubs and gatherings in England, correctly recognizing MDMA culture as a threat to their hegemony. Tobacco has been quick to support anti-marijuana sentiment. The Armed Forces of the United States are actively suppressing the competitive threat of coca, both at home and abroad. The great Spice War continues.

Shorty was an erudite cat burglar from New Orleans. He couldn't have been more than five feet two. Shorty would come and hang out on my bunk and tell great stories of the life of crime. He remembered movies he liked too, and once recited scene by scene the Burton and Taylor film Who's Afraid of Virginia Wolfe. *He liked the other Burton too, Richard Francis Burton, the explorer. He'd read many of his books and could tell a lot of the stories. On the outside his day trade was welding and he worked in the shipyards. That confused me. I asked him why if he was a burglar he had a regular job.*

"You got to have a job to be a criminal, man," he said.

"But then what's the point?"

Shorty just shook his head.

"You're a real nice guy," he said, "but let me give you some advice: you're not right for crime. It just wouldn't work for you. Trust me on this, okay?"

Shorty worked in the kitchen as a dishwasher. One day he downed a can of mace. I was reading on my bunk. He had a big grin and he sat down. Science has no explanation for the "contact high," but I got it. Everything seemed absurdly funny. We'd already been laughing for twenty minutes when it was time for the ward meeting. One of the docs was there, a deputy warden, the social workers, and the rest of the inmates. We sat apart from each other, but it didn't help. One or the other of us would start giggling and then we'd both be laughing. No one else was amused. Sometimes we'd be able to control it for a few minutes, then I'd catch Shorty rolling his eyes at the ceiling and we'd both be gone again. The warden started mumbling something about release dates, and that pushed us both back over the edge and we just let it all go. The cosmic absurdity was about to give us each another six months and both of us were laughing so hard there were tears on our faces and we were falling out of our chairs. What did any of this puny farce mean compared to the great absurdity of the universe? Somehow we both knew that the laughter was on our side, that they couldn't really hurt us because what we were laughing was the Truth. Then the other guys started giving us the evil eyes and we were finally able to fake some normality.

"Sorry," I said, "private joke."

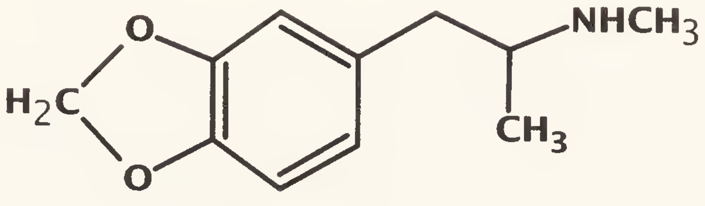
Wherever you are, Shorty, this one's for you.

XTC
FLIPPING AND RAVING

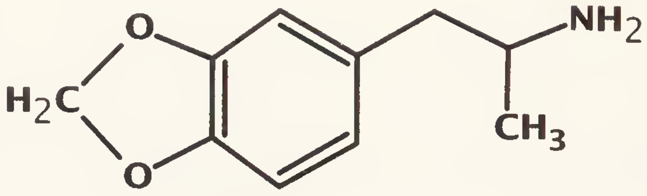
Chemistry	3,4-Methylenedioxy-N-methylamphetamine (MDMA).
Related Substances	3,4-Methylenedioxamphetamine (MDA). 3,4-Methylenedioxy-N-ethylamphetamine (MDEA). MDMA is known as Ecstasy, E, X, or Adam. MDEA is called Eve. MDA was dubbed "the love drug."
How Taken	As crystals, from reputable chemists. On the black market as tablets of widely varying potency. Analyses, and pictures, of dozens of pills and tablets from the United Kingdom are in Saunders (1995, 1997). Many tablets contained MDEA rather than MDMA, or a mixture of the two compounds. Of the pills containing MDMA, the quantity varies from 2 mg. to 160 mg., with most falling between 70 and 110 mg. Several "brands" contain no MDMA or MDEA, substituting amphetamine, caffeine, or ephedrine, sometimes mixed with ketamine. One wishes that some traditionally benevolent agency, such as Weights and Measures, would insist on truth-in-advertising. Since the DEA has made that impossible, a nonprofit organization, DanceSafe, using grants from Promind and the Multidisciplinary Association for Psychedelic Studies (MAPS), has sponsored analyses of pills being sold as MDMA in the United States. Results (DanceSafe 2001) show that while the majority of the pills are indeed MDMA, others are MDA, dextromethorphan hydrobromide (DXM), caffeine, or ephedrine. One pill contained phencyclidine (PCP). A number of pills contained nothing at all. DXM, a common ingredient in cough syrup, increases body temperature and is thus dangerous in a dance environment, as hyperthermia is the most frequent cause of medical emergencies at raves. In 2000, pills containing 4-methoxyamphetamine (PMA) began circulating on the West Coast. PMA has adrenergic pressor effects and has been associated with several deaths. DanceSafe sells testing kits, using the Marquis reagent, that can reliably differentiate pills containing caffeine, DXM, PCP, or amphetamine from those containing MDMA. Other tests can distinguish MDMA from MDA.
Effects	The great opener of the heart chakra. Heart speech, heart words, spoken and listened to and heard and felt. Release of compassion. Touching. A mammalian thing, lying together in a pile like sea lions on a rock.
How Taken	In small groups. As a couple. Alone, questing. With a friend. At a community gathering. At a rave.

Pharmacology / Toxicology

Much is known about the neuropharmacology of MDMA, but none of it fully explains its unique effects. MDMA blocks the reuptake of serotonin (5-HT) in the synaptic cleft, as do SSRI (serotonin specific reuptake inhibtors) antidepressants such as fluoxetine (Prozac) and sertraline (Zoloft). The 5-HT acts on both pre- and postsynaptic binding sites. Further, MDMA binds directly to 5-HT receptors, and is also an agonist for muscarinic M1, alpha-2 adrenergic, and histamine H1 receptors. MDMA also releases dopamine.



MDMA



MDA

The metabolic halflife of MDMA in the body is six hours. That means that after 24 hours 15/16 of the MDMA has been eliminated. After 48 hours only 1/256 of the MDMA is still in the body. Seventy percent of the MDMA is excreted unmetabolized in the urine.

Brings to mind certain reports from Siberia. . . .

In addition to blocking the reuptake of 5-HT, MDMA or one of its metabolites apparently enters the neuron and causes release of 5-HT from cytoplasmic stores. Thus, not only does serotonin flood into the synapse through the 5-HT transporter, but because the reuptake channel is blocked it stays there and concentrates. Again, however, this does not explain MDMA's activity, as other drugs which flood serotonin into the synapse do not produce MDMA-like effects. Further, MDMA is not cross-tolerant with MDA, its near molecular cousin, nor with other psychedelics. Truly, it's in its own class.

◑

Dozens of studies have been made investigating possible neurotoxic effects of MDMA. Most of these studies have been on rats and mice, though at least one involved squirrel monkeys. Indirect evidence suggests serotonergic axonal damage at high doses, and prolonged decreases in serotonin levels at even moderate doses. Extrapolating these findings to humans is imprecise at best.

But still.

Even without the animal studies, to the sensitive bio-assayist, MDMA packs a heavy body-load, and feeling "wiped-out" for a day or two after ingestion is not uncommon.

> *I was in the midst of a very complex systems design. It was a real-time event-driven machine with numerous interacting modules. There were finite state automata, arrows, rings, and queues all over my white board. We took the Adam on Saturday. It was one of the more memorable, satisfying, and life-changing nights of my life. I felt great on Monday, but I couldn't get into the diagrams deeply enough to pick up the thread I'd left off on Friday. Instead I went around visiting with the other engineers in their offices, talking, re-connecting and team-building. I can't remember what I did on Tuesday, but Wednesday I finished the design.*

Several studies have reported evidence of short-term memory impairment in MDMA users. None of these studies has used large samplings, and they are open to criticism in a number of ways. None of the differences between the "controls" and the test subjects were much above the noise level, and in some of the tests acute effects of MDMA could still have been significant.

> *But still.*

Until more data are available, the wise adept will never go over 100 mg. per 100 lbs. body weight, and that only very occasionally. Half-doses are surprisingly effective, especially if followed up with some psychedelic.

At raves, aside from a few idiosyncratic reactions, most of the damage has come from overheating (hyperthermia) or dehydration. Drink water, juice, or ion-balanced drinks. Don't overdo it, though. One young woman died from drinking too much water, when her body became desalinized (hyponatremia).

A few more cautions and tales: MDMA can result in a rapid rise of blood pressure during the first hour, and occasionally tachycardia. Persons with heart or arterial problems should use caution, or pre-dose with a beta-blocker. A beta-blocker, such as propanolol, would also reduce the jaw-clenching and sympathomimetic effects that often result from MDMA.

In animal studies, fluoxetine (Prozac) effectively blocks the neuronal damage associated with large doses of MDMA. Dropping a Prozac an hour or two after taking MDMA might be a wise precaution.

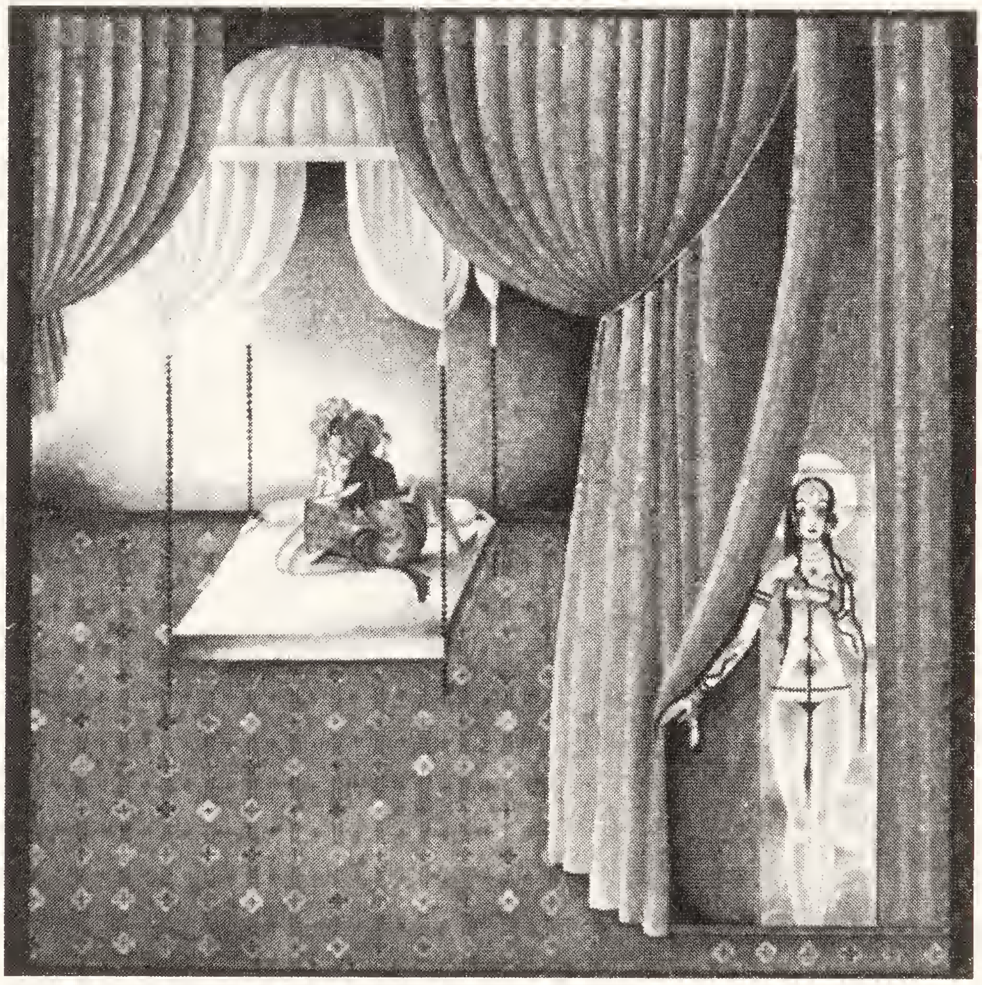
Some people taking Prozac report decreased effects from MDMA. A few people have used an MAOI such as harmine to lengthen the effects of MDMA, but this seems very ill-advised to me. If you don't

MASTER OF POISONS, BUNDI, C.1790 (DETAIL) know what an MAOI is, you're in over your head here and need to do some homework.

Signatures Being out among the general public on ecstasy carries the risk, in Ann Shulgin's words, of picking up "hitchhikers." You might be sitting on a bench in the park. Somehow your vibrations extend out for fifty yards, and strangers will come and sit beside you and start telling you their life stories.

> *Always disconnect your telephone. If your mother calls, you'll never get off the phone.*
>
> *—Ann Shulgin*

Effects Sex on X is good, but women need to know that the sympathomimetic properties of X can inhibit male erection, so take it as it comes. No need to try to force anything.



YOUNG MAN LOVED BY TWO SISTERS,
KAY NIELSEN, 1918

The Ally

> *We were introduced to it by a friend of ours named Marsha. We all fasted, then drank some bicarbonate of soda, then the Adam. We had already been getting close, but the Adam let us talk frankly about our feelings for each other. We lay around a lot on the blankets, holding each other and giving three-way foot massages. It was so good we took the booster. The next week we became lovers. We invented the word "truple," and started looking for things that came in threes.*

The Ally A woman I know had been trying to quit smoking for several years. She would throw away all of the cigarettes, last two days, and then buy another carton. On Adam the craving became transparent, and unnecessary. Other than an occasional social cigarette, she never smoked again.

Signatures "We had sex on the first date, X on the second. Then we got married."

CORRESPONDENCES

ACTIVITY: Purification
ANIMAL: Sea Lion
ARCHETYPE: Temple Priestess
ART FORM: Dancing
BODILY FUNCTION: Irritability
BODY PART: Feet
BUDDHA REALM: Kwan Yin
CHORD: Major Third
COLOR: Opalescent Silver
COSMIC ENTITY: Pulsar
CRUTCH FOR: Self-Absorption
DIMENSION: Corporeal
DISCIPLINE: Alchemy
ELEMENT: Fire
FORM OF ENERGY: Fusion
FORM OF IGNORANCE: Alienation
GEMSTONE: Pearl
GEOMETRY: Tensor
GOD: Krishna

History MDMA was synthesized and patented by Merck Pharmaceuticals in 1912, but the company never discovered the drug's unique effects and it was not marketed. The US Army investigated MDMA in 1953 in their search for a truth serum for use in interrogation. MDMA was code-named Experimental Agent 1475.

Alexander Shulgin synthesized MDMA in 1965, as part of his extensive investigation of structure-activity relationships of phenethylamines, and has been called the "father of MDMA." Actually, according to Daniel Perrine (1996), Shulgin first learned of MDMA's profound psychological effects from a young chemistry graduate student named Merrie Kleinman, who had synthesized some herself and tried it with some friends. Shulgin began his own experiments and published the first scholarly article on MDMA in 1976, with David Nichols. Rumor has it that it was Shulgin who first introduced MDMA to Leo Zeff, who in turn almost single-handedly created a therapeutic protocol and turned on and trained thousands of other therapists, as well as artists, writers, and businessmen.

For the next eight years MDMA was mainly used by therapists, their friends, and those with connections to their friends. Most of these people were old enough to remember the sixties and kept their mouths shut. During this period MDMA was called Adam. Couples work was common, or small circles. Ralph Metzner coined the word "empathogen."

The Ally

> *We'd taken E to do a parting ritual, a ceremony to mark the end of our relationship. She brought in a basin of warm water and a bowl of salt. She washed my feet, rubbed them with oil and salt, and dried them with her hair.*
>
> *On the beach we built a little fire and she cut off a lock of her hair and tossed it into the coals. I did the same.*

History

By the mid 1980s, MDMA was being used more and more by students and others of the younger set, especially in California and Texas, and it was being called *ecstasy*. In 1984 the DEA published a notice in the Federal Register that it intended to place MDMA in Schedule I of the Controlled Substance Act. Much to their surprise, the scientific and therapeutic community mounted a challenge. Thomas Roberts, George Greer, Lester Grinspoon, and James Bakalar retained an attorney and sent a letter to the DEA requesting a hearing.

The first hearing was held at Esalen in Big Sur. A number of researchers and psychiatrists, including Stanislav Grof, Claudio Naranjo, Richard Yensen, and Philip Wolfson, presented evidence of the positive benefits of using MDMA in a wide variety of therapeutic contexts, from treating psychosis to child abuse to post-traumatic stress syndrome.

In April of 1985, *Newsweek* published a sensationalist article on ecstasy, calling it "the drug that LSD was supposed to be," and more media exposure followed. Gary Trudeau produced a series of *Doonesbury* cartoons about MDMA and other "designer drugs." A laboratory in Texas began producing large quantities of MDMA, as much as a kilogram a day, and selling the tablets in bottles labeled "Sassyfras." This was the last straw for the DEA, and they used their recently acquired emergency powers to place MDMA on Schedule I for a period of one year. Their rationale was a study that had found that large doses of MDA (not MDMA) caused brain damage in rats, even though they admitted that MDA and MDMA were not cross-tolerant.

Two more hearings followed. The preponderance of the evidence, by such researchers as the Shulgins, David Nichols, Thomas and June Riedlinger, and many others, overwhelmingly stressed the positive potential for the use of MDMA, and the virtual absence of reported problems or emergency room visits. The principal witness for the DEA was Ron Siegel, best known for proving that monkeys injected with enough cocaine will start chewing their hands off. In response to the therapeutic claims being made for MDMA, Siegel stated that "we've all heard this before, for LSD," and that "we don't want another PCP on the streets." The DEA's Administrative Law Judge Francis Young, in a ninety-page decision, found in favor of the litigants, citing that the DEA had not established that MDMA had a high potential for abuse and that MDMA did indeed have "currently accepted medical use." He recommended that MDMA be placed in Schedule III. The DEA had no intention of following the judge's decision, and placed MDMA permanently in Schedule I anyway.

Signatures I think more marriages may have been broken by MDMA than saved. Adam makes it ok to say "I'm not happy." To feel it and to know how and why it is true.

The Ally

If you are not in paradise, the E will show you.
If you are in paradise, you already know.

CORRESPONDENCES

GODDESS: Brigit
GRAMMAR: Limbic
HISTORICAL AGE: Golden Age
IMAGE: Village
LANDSCAPE: Ocean
LOGICAL OPERATOR: And
MACHINE: Balloon
METAL: Gold
METAPHOR: Truth
MINERAL: Peridotite
MUSICAL INSTRUMENT: Synthesizer
MYTH: Sun Sister
MYTHIC HERO: Attis
NUMBER: Natural
OCCUPATION: Priest
OUT-OF-BODY REALM: Realm of Sensual Pleasures
PERIODIC TABLE COL.: Alkali Earths
PHASE OF COITUS: Pre-Orgasmic

SENSUAL PLEASURES,
MAILLOL, 1926

The Ally A medicine for alienation. Which may account for its popularity.

Poesis Not trivial. Make friends with a chemist.

The Ally

> *We took it with another couple—five of us altogether. I had a crush on all three of these women, and I'm thinking, "How far can this go? I'm already having sex with two of them." The Adam was coming on and there was this awkward silence so I just said "I'm in love with every woman in this room." The women just laughed and said that was OK and crawled all over me. I was in heaven.*
>
> *Later in the day I was lying on my back in the bedroom listening to music and Sharon came in and crawled on top of me.*
>
> *"I've had a crush on you for a long time. You probably didn't know that."*

Effects Telepathy. But an emotional telepathy, different from the noetic telepathy of the hallucinogens. Rupert Sheldrake (1995) performed an experiment where four subjects, with their backs to the room, were stared at by the rest of the group. At the end of twenty seconds each subject wrote down whether or not he felt he was being stared at. Most subjects scored no better than chance. One subject, however, was nearly always right. He revealed later that he had taken MDMA.

The Ally

> *My daughter was supposed to clean out the litter box, her job, but she hadn't been doing it. I took her hand and walked her over to the box. I took the big wooden fork and started showing her. "Treasures in here somewhere. Oh, there's a good one." I watched the horror in her face as I put it to my nose and smelled it. It was as if I could smell the way dogs smell, nothing really bad, just rich strong odors—fish, chicken, all the cat food of the past several days.*
>
> *The daughter ran off screaming.*

History In the winter of 1986-87, ecstasy arrived on the island of Ibiza. About the same time, the Rajneesh commune in Oregon closed, and ecstasy began spreading around Europe along with the red-clothed emigrants. A group of young British DJs, who had discovered the new religion of E + music on Ibiza, decided to recreate the scene after they got home.

> *The resulting reaction triggered off the most vibrant and diverse youth movement Britain had ever seen. Ecstasy culture—the combination of dance music (in all its many and various forms) and drugs—was the driving phenomenon in British youth culture for almost a decade. It sent out shock waves that continue to reverberate culturally and politically, affecting music, fashion, the law, government policy and countless other areas of public and private life.*
>
> *—Matthew Collin, Altered State*

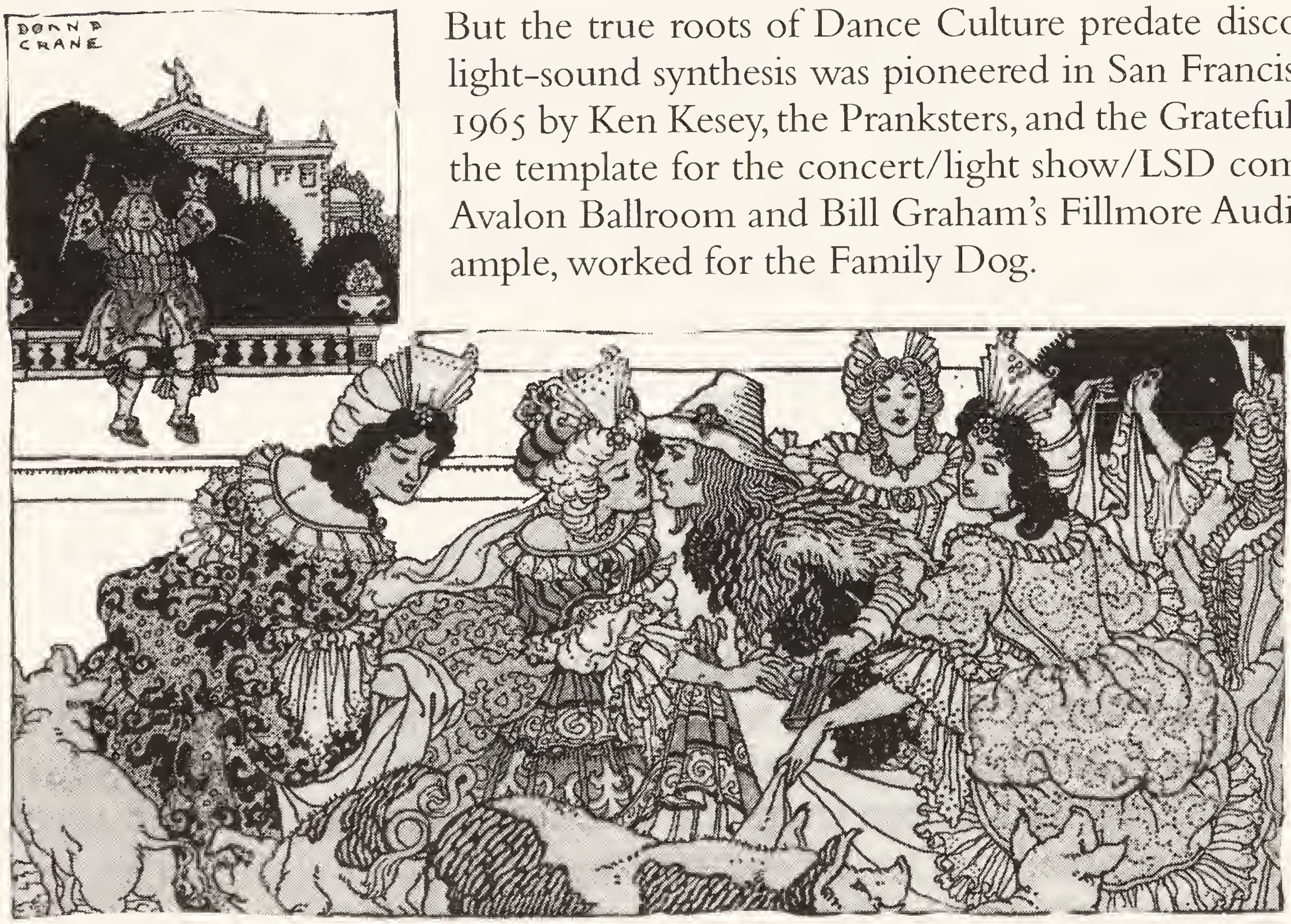
Collin (1997) traces several lines of musical and cultural transmission that fed into Acid House. While any such reconstruction is oversimplified and incomplete, it is nonetheless an interesting story. Collin begins with the Stonewall Riots of 1969 in New York, and the new energy in the black gay disco clubs that followed. Many of the DJs who later became important innovators frequented the Loft, where David Mancuso hosted Saturday night parties beginning in 1970. The drug of choice was a speed-quaalude combo. One of the Loft graduates was Larry Levan, who went on to create total environment sound at the Paradise Garage.

> *The almost devotional intensity of the atmosphere in the black gay clubs of New York created an ideological template that has been employed, knowingly or not, in dance cultures ever since.*
>
> *—Matthew Collin*

Another Loft graduate was Frankie Knuckles, who later moved to Chicago and, by making use of electronic sound and drum boxes, took part in the early development of Chicago House, while Techno was emerging in Detroit. These threads, New York Garage, Chicago House, and Detroit Techno, transmuted and evolved, met ecstasy from California in Ibiza and emerged at the Shoom in London in 1987. Other contributions to the rapidly evolving music came from Kraftwerk, with roots in the European electronic avant-garde classical tradition.

> *Scratching. Sampling. How can you call that art? It'd be like someone writing a book using other peoples words and ideas, just taking a bunch of quotes and bits and mixing them up together with italics everywhere . . .*

But the true roots of Dance Culture predate disco. The total environment light-sound synthesis was pioneered in San Francisco with the Acid Test in 1965 by Ken Kesey, the Pranksters, and the Grateful Dead. The Acid Test was the template for the concert/light show/LSD combos at the Family Dog's Avalon Ballroom and Bill Graham's Fillmore Auditorium. Goa Gil, for example, worked for the Family Dog.



GROUP KISS, D. CRANE, C.1920

As the rave scene was gaining momentum in England in the late eighties and early nineties, the British government moved to suppress it. Rave organizers responded by keeping the location of the rave secret until just before the event and then announcing the location on a pirate radio station, or at a particular telephone number. By the time the police arrived at the rave, it was already too big to be dispersed.

> *Free gatherings are political acts, outside the mainstream of controlled commerce. Just getting together, dancing, making art, is a confirmation of the archaic human cooperative spirit.*

In the countryside, the "house" scene met the festival travelers. The travelers, like the Rainbow Tribe in America, were psychedelic. They knew how to put on large outdoor gatherings. And when they tried ecstasy, they liked it. The union of the urban house scene with the rural, nomadic festival scene created a bona fide counterculture—out of the foam of hedonism, political consciousness emerged. Lucretius would have smiled, and nodded.

Government response took the form of raids, arrests, and a series of increasingly harsh and arbitrary laws. They particularly targeted the Spiral Tribe, who, like the Pranksters in America a generation before, were intent on twenty-four hour transformation. Spiral Tribe lived in buses, carried their sound system with them, and blared techno at dance gatherings every weekend. Others followed their lead. After a large festival at Castlemorton in 1992, police moved in with roadblocks and helicopters and managed to arrest most of the members of Spiral Tribe. The Tribe responded by organizing. Protests against the sweeping new laws, some of which specifically outlawed "acid house" and "techno" music, drew crowds as large as 100,000. Police mounted horseback charges against the protesters and arrested hundreds, but the protests continued. At their lengthy and very expensive trial two years later, all members of the Tribe were acquitted.

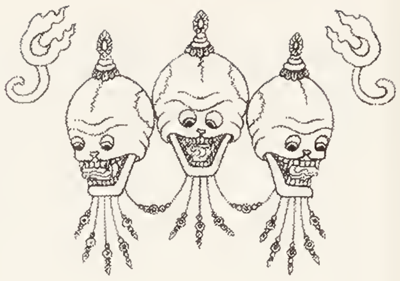
> *Ecstasy clubs in Northern Ireland were the first venue where Protestant and Catholic youths danced together. When footballers in England began taking ecstasy, violence plummeted. Everywhere it has gone ecstasy has been a catalyst for peace.*

To many old-timers, the association of ecstasy with dancing has always been mystifying. No one had ever danced on Adam.

> *I'd rather be lying in a mush pile.*

The focus on dancing, itself, is evidence of the presence of psychedelics and stimulants in Dance Culture. LSD had never disappeared in the United States, as it had to a large degree in England. In England, ecstasy filled a void and created a new subculture, complete with a Summer of Love. When the rave scene emigrated back to the United States in the early nineties, ecstasy always shared the floor with acid and mushrooms.

Matters of State and Liberty



By outlawing MDMA, the DEA not only curtailed therapeutic research, it created a new generation of disaffected youth, a generation who otherwise had no reason not to extend the ecstatic and peace-loving energy of their new religion to encompass and benefit the larger culture. What is emerging is a cross-generational solidarity with those elements of the sixties counterculture who never renounced their own communal dancing and are now breathing a great sigh of triumphal relief.

The clear message from the Drug Warriors is that they are not interested in peace, citizenship, or even tolerance.

No. They want to incarcerate all of us, and make money doing it.

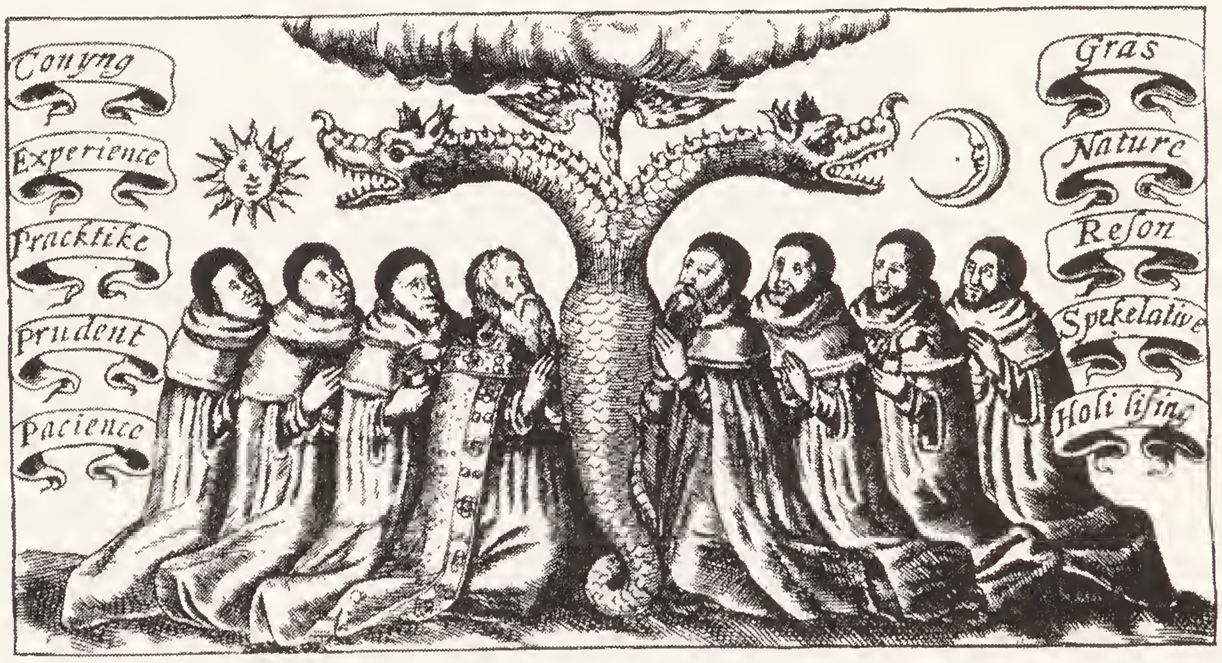
Health and safety were never the issues in outlawing MDMA. The risk of dying from MDMA is about the same as dying from prescription drugs, oral contraceptives, or from choking while eating, and a thousand times less than from using tobacco or deep sea fishing (DanceSafe 2000). The war against MDMA is a cultural and a religious war, carried out with all the zeal of rooting out heretics.

When Augustine condemned both black magic (goetia) and white magic (theurgy) as "criminal tampering with the unseen world," he wasn't condemning recourse to spirits. He was condemning recourse to spirits that weren't on the right list, his list. A recent British law has outlawed every chemical in the Shulgin's book *Pihkal.*

Wrong list.

The Myth

Some say that the whole universe, the great dancing play of light and form, all the green trees and bushes and grasses, the rivers and streams, is Vishnu dreaming. That sometimes he will shift in his sleep, a kalpa will end, the great castles and



THE PRIMA MATERIA BEING FERTILIZED BY THE HOLY GHOST,
THEATRUM CHEMICUM BRITANNICUM, 1652

cities will wash away in a flood, and the DJ will put on a new track. Meadows and forests are covered with sand. Dry winds blow and zebra-skinned dunes cover the libraries and foundries, the great gardens and the backyard swings. Lake Lahontan dries to a long salt flat.

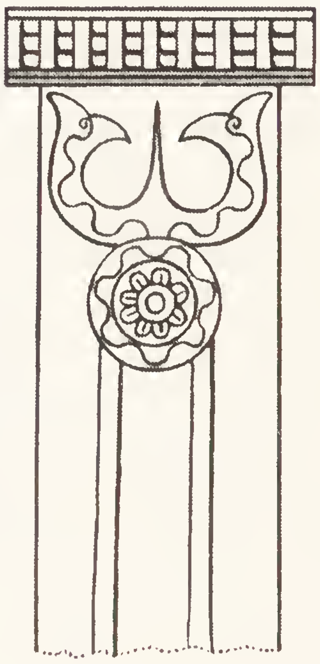
He exhales, and ships arrive on a new coast and furl their sails. People with stone-tipped spears wander through a wide pass. The telephone rings and it's her—she has returned your call. She's friendly. She's interested. Some say.

Some say it is all a little worm that twists and turns, another world beginning: volcanoes, ferns sprouting on dark lava flows, water dripping. Outriggers cutting across the great blue Pacific. Some say. Some say the worm is the thousand-headed World Serpent, Ananta, that Vishnu rests upon while Lakshmi massages his feet. Some say the Serpent is the Great Devourer, is voracious. Or that the serpent is the World Boa, or that the worm is red, and the universe a turning. Some say.

Others say that it was Coyote.

CORRESPONDENCES

PHASE OF MATTER:	Solid
PHYSICAL CONSTANT:	Cosmic Density, Ω
PLANET:	Neptune
PLATONIC SOLID:	Sphere
POISON:	Love
PROPORTION:	Integral
QUANTUM FORCE:	Gluon
REALM OF PLEASURE:	Solar Plexus
RITUAL EVENT:	Divorce
ROCK:	Shale
SEASON:	Solstice
SENSE:	Intuition
SEXUAL POSITION:	Sixty-Nine
SIGN:	Ursa Major
SIN:	Adultery
SOCIAL EVENT:	Ritual
TAROT KEY:	The Lovers
TIME OF DAY:	Late Afternoon
TOOL:	Torch
VIRTUE:	Compassion
VOWEL:	Dipthong/*ey*



The Ally Black light. Trance beat. The Devi-girl sprouted four arms, right before us. We kept dancing.

> *I disguised myself as Richard Francis Burton entering the gates of Mecca. It was hardly a disguise. I spoke Arabic fluently, and a number of other languages I thought might prove useful: Phrygian, Bengali, Greek, Portuguese. In my years of travels I had learned the names of hundreds of gods, and knew the proper offerings for each. I'd worshipped Christ. I'd worshipped Dionysus. I thought I had seen it all. I was wrong.*

Facing the Great Machine. Neural implants. Twitching. Could no one else see the fine threads pulsing and emanating from the computer. The Bacchants were chanting "surrender, surrender." I glimpsed Kali. Or was it Cybele? I closed my eyes and let the rhythm wrap around me like a boa. When I opened my eyes the Controller was staring at me from the stage. He'd seen right through me.

I laughed. And kept dancing.

> *Freedom. Shiva. Ma.*

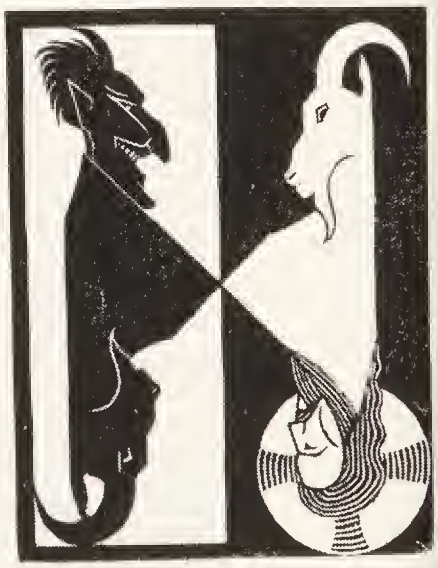
The Myth Some say that the world was a place that was all good. There was no death. There were no lies. Everyone was happy and lived in light and ate only fruit. It was like this. All things were good. Until Coyote decided he liked the smell of rabbit fur. He grabbed a rabbit and put his face in it and started eating, and one thing led to another until small, wet, red things began appearing in the world, crawling and begging until they grew old and lost their eyesight and their bones ached and they died in pain. And that's the way it is, since Coyote fucked things up, some say.

Some say technical discourse creates a distorted image of the world.

The Ally The celebrants—some painted, some wearing devil horns, bits of day-glo.

Devil-horns. Brings a smile. I remember.

> *There was one. One in the class. One in the regiment. One in the court. One in the Church. Who raised his hand. Said, "Excuse me . . . I have a question." They beat him and threw him off the property. Defenestrated. He fell to the ground. Plants softened his fall. Exile.*
>
> *Just one more act, he thought, just for the aesthetics. He raised his fist to the sky. The kind of man would bite the hand that fed him. Like an animal. Wild. His fingernails scratched at the black sky. There were sparks.*
>
> *Thus Adam became Lucifer, the Light-Bringer.*



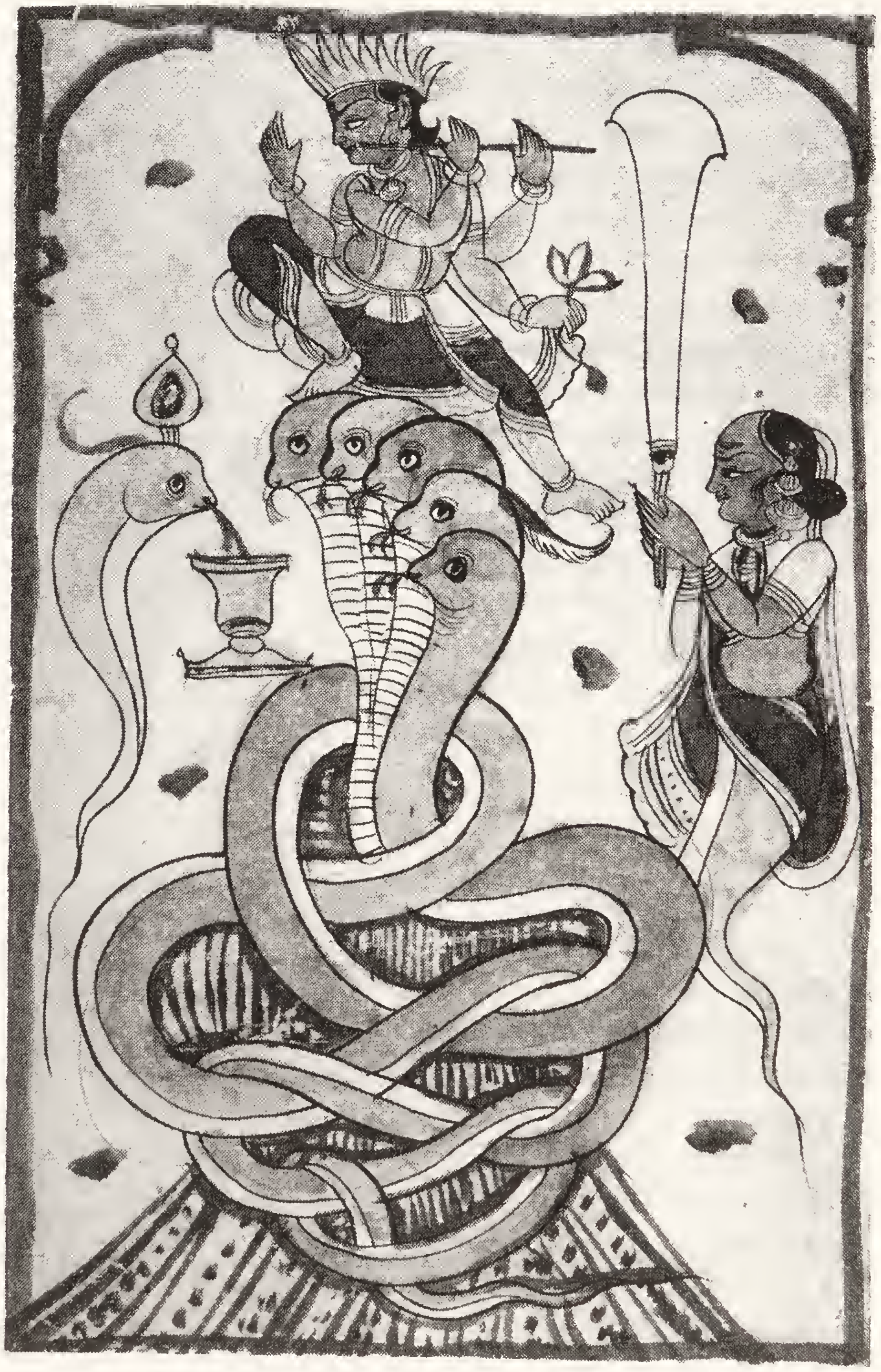
ESCHER, 1921

The DJ changed tracks. A new goddess appeared, still devouring. No one stopped dancing.

Bhakti.

In Techno-Trance we have returned to the Clock, where our excited journey began. The great devouring machine—not broken, but attuned. Stamp mills, conveyors, pulling vinyl off the line, working at the machine's pace. Mills, coal burning, Babbage and Ada somewhere making their drawings and equations. Accepted and worshipped, that the great cracking of the continuum devour all thought, all traces of conception, every beginning swallowed up as it emerges from the coils of the serpent that is itself the devourer. *Automatia*, joining, really, with Krishna, dancing towards Liberation.

Hare, Hare



KRISHNA SUBDUING KALIYA,
NORTHERN INDIA, 19TH CENTURY

Dancing is the quintessential human activity. We may never know which came first, dancing or language, but if William McNeill (1995) is correct, keeping together in time, rhythmic dancing, was the crucial cultural innovation that allowed early *homo sapiens* to form large, stable communities.

Throughout history and what we know of prehistory, rhythmic dancing has been the vehicle for group bonding and identity, and the gateway to trance and prophecy.

Ghost-dancing, the drum machine
driving relentlessly towards the New Millennium.

Some say. Some say the world was created by Shiva dancing.

> *I merely suggest that bands that were successful in cultivating community-wide performance, insulating emotions thus aroused from the mating game, had an important advantage over any groups that failed to consolidate fellow-feeling with the entire community by dancing together. If that was so, we can assume that community-wide dancing was in fact effectually separated from sexual pairing off in most or all early human communities. It follows that the direction dancing has taken in recent centuries in the western world [i.e., paired dancing] is exceptional and may even be regarded as a social pathology.*
>
> *—William McNeill*

Thus communal dancing is a reformation.

Even in the darkest Goa spins there are traces of humor and playfulness within the devotional intensity. Few things are certainly Good, but playful devotion is not a bad square on which to place a wager.

Hare, Hare

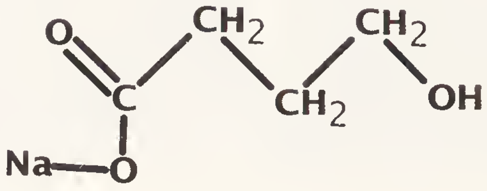
GHB

Common names GHB, G, Liquid Ecstasy, Gamma-hydroxybutyrate.

Chemistry Gamma-hydroxybutyrate.

Related Substances Gamma-butyrolactone (GBL), 1,4-butanediol.

Pharmacology / Toxicology All three of these substances are naturally occurring chemicals in mammalian tissues. Related chemicals are common in plants, animals, and fungi. The plant ally has here transformed herself, through glutamate, the Krebs cycle, and several hundred million years of evolution. GHB is a metabolite of gamma-aminobutyric acid (GABA), an important neurotransmitter, but the presence of 1,4-butanediol in mammalian tissues presents an alternative biosynthetic pathway (Barker 1985).

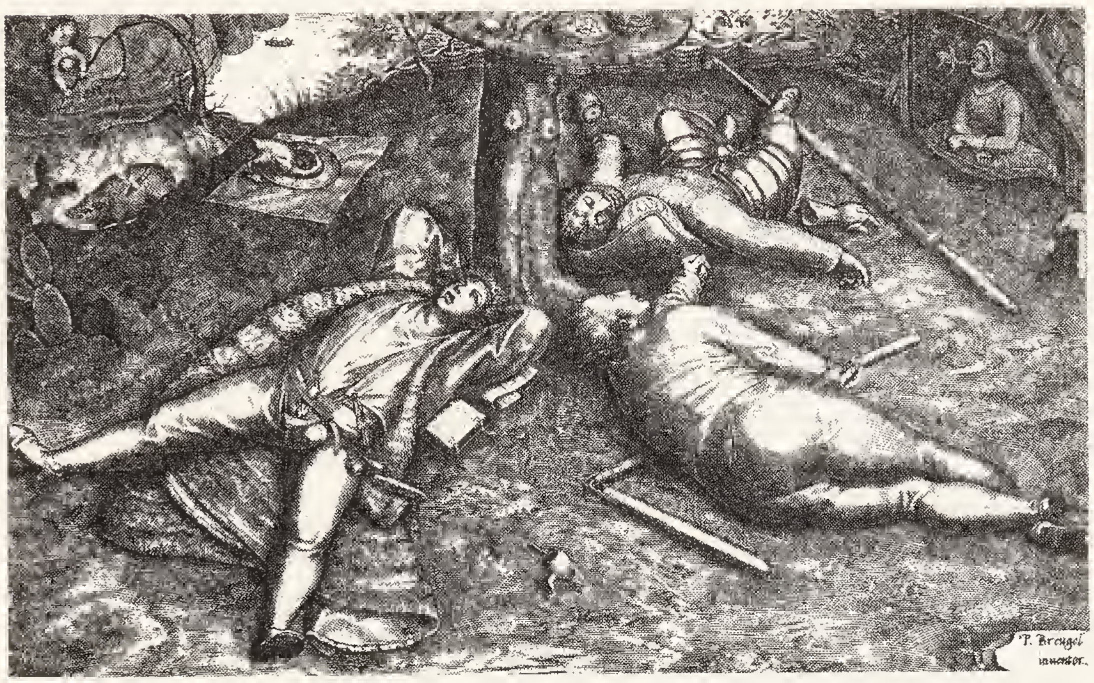


GHB (Sodium salt)

GHB functions as a neurotransmitter in its own right: it has specific receptor sites, it is endogenously produced, and it is concentrated in specific areas of the central nervous system (Beardsley 1996). GHB is generally considered to be an inhibitor of striatal dopamine release. Several experiments that have shown GHB to be a dopamine enhancer may have to do with interaction with anesthetics, as one study found that GHB enhanced dopamine release only in anesthetized animals, while inhibiting dopamine release in animals that were awake (Howard 1997). GHB is also a weak agonist of the GABA-B receptor, and perhaps also the GABA-A receptor, at least at low doses (Lobina 1999, Lingenhoehl 1999, Mathivet 1997).

The highly selective inhibition of dopamine release makes GHB an important neurochemical research tool. Medically, GHB has been used as an anesthetic, and it is an effective and important drug for treating narcolepsy. GHB is also used to treat alcoholism and to relieve the withdrawal symptoms of heroin addiction. Its use for combating the lingering craving for cocaine is also promising (Schmidt-Mutter 1999). In an experiment with rhesus monkeys, based on low reinforcing stimulus substitution results, researchers concluded that "GHB has, at most, low potential for abuse" (Woolverton 1999). More recent experience has shown that this is not quite the case.

The mechanisms for the full range of GHB's overt effects are complex and not well understood. GHB has been used as a model for petit mal epilepsy in research. In low doses, GHB is used by body builders as a "fat burner." At medium doses, GHB has a euphoric and disinhibitory effect. At high doses GHB puts you to sleep. The most dangerous aspect of GHB is that the difference between a medium and a high dose is very small, and once GHB is dissolved in water the dosage becomes a matter of oral transmission.


P. Bruegel inuentor.

THE LAND OF COCKAIGNE (DETAIL), BRUEGEL, 1567

As with any tranquilizing-like drug, cases of habituation have been reported, though not on the scale of benzodiazepines or barbituates. One man, who had taken GHB on a daily basis for two and a half years suffered mental agitation, elevated blood pressure, and tachycardia for some hours after quitting and was treated with tranquilizers for four days (Craig 2000). One could expect similar symptoms from shorter term use as well (see notes).

Overdoses of GHB are fairly common, though rarely life-threatening unless alcohol or other drugs are involved. The most common symptom is a deep and unrousable sleep. Intubation may sometimes be necessary if there is choking or if blood oxygen levels fall below normal. Full recovery usually occurs in four to five hours. As with alcohol overdose, the main danger is from vomiting and choking. Bradycardia (a steady but slow heart beat) is another common symptom, and in extreme cases neostigmine may be needed as a reversal agent to prevent respiratory arrest and death. Such cases are rare, but extremely well-publicized. In 1997 it was reported in the Journal of Toxicology that "no deaths or long-term problems have been associated with GHB abuse" (Tunnicliff 1997). That has changed.

Harrington et. al. (1999) report a nearly fatal reaction from a small dose of GHB in a man taking HIV-1 protease inhibitors. Severe liver dysfunction prolongs the half-life of GHB in the body, though only moderately (Ferrara 1996). GHB is present in the body *at all times,* and GHB levels rise naturally in post-mortem tissues.

Effects

"Like a valium and a drink." Or a good night's sleep in half a night.

Matters of State and Liberty

GHB was ostensibly outlawed as a "date rape" drug, riding the coattails of sensationalist publicity generated around Rohypanol. President Clinton signed the "Hillory J. Farias and Samantha Reid Date-Rape Prohibitation Act" on February 21, 2000. Ironically, there was no sexual assault involved in either of the two cases. Hillory Farias shared a Sprite with a friend at a local club. When she returned home, complaining of a headache and being tired, she spoke to her grandmother, went to bed, and died sometime during the morning hours. The autopsy could not reveal the cause of the death. A month later, local police decided that her blood should be checked for the new "designer date-rape drug," GHB. GHB was indeed found, as it would be in any corpse, but nonetheless her death was ruled a homicide.

Nothing about Hillory Farias's symptoms is consistent with GHB poisoning. It is much more probable that she died of a congenital heart condition, as had one of her uncles. A niece and a nephew had each had open heart surgery. Her heart had never been examined, as it had been donated before the autopsy—explaining why the coroner was unable to determine the cause of death.

Samantha Reid did die from GHB poisoning. Four defendants, who caused her to unwittingly consume a lethal overdose of the drug, were convicted of involuntary manslaughter and poisoning and given long prison sentences. There are already laws covering nonconsensual sex, severe felony laws. Criminal acts are just that, and morally indefensible, but they have nothing to do with the responsible use of an approved food additive and dietary supplement by millions of Americans.

With the possible exception of dimethyltryptamine (DMT), GHB is the first human neurotransmitter to be placed in Schedule I of the Controlled Substances Act, illegal to possess and manifestly declared to have no medical value. Kafka would have smiled, grimly.

Effects Quotes are from Earth Erowid, and we will follow Erowid's general outline. Dosages are subject to idiosyncratic reactions. The wise doctor will follow the methodology worked out by mycophagists, experimenting with unknown wild mushrooms. Start low. Also, it is important to notice that there is very little difference between low dose and medium dose, or medium dose and heavy dose, or, especially, between heavy dose and overdose. As being comatose in public is unseemly as well as unprofessionally vulnerable, heavy doses should only be experimented with, if at all, in a secure environment (like, your bed).

LOW DOSE (.5 TO 1.5 GRAMS):

Tranquilizing, mildly sedative, calming.

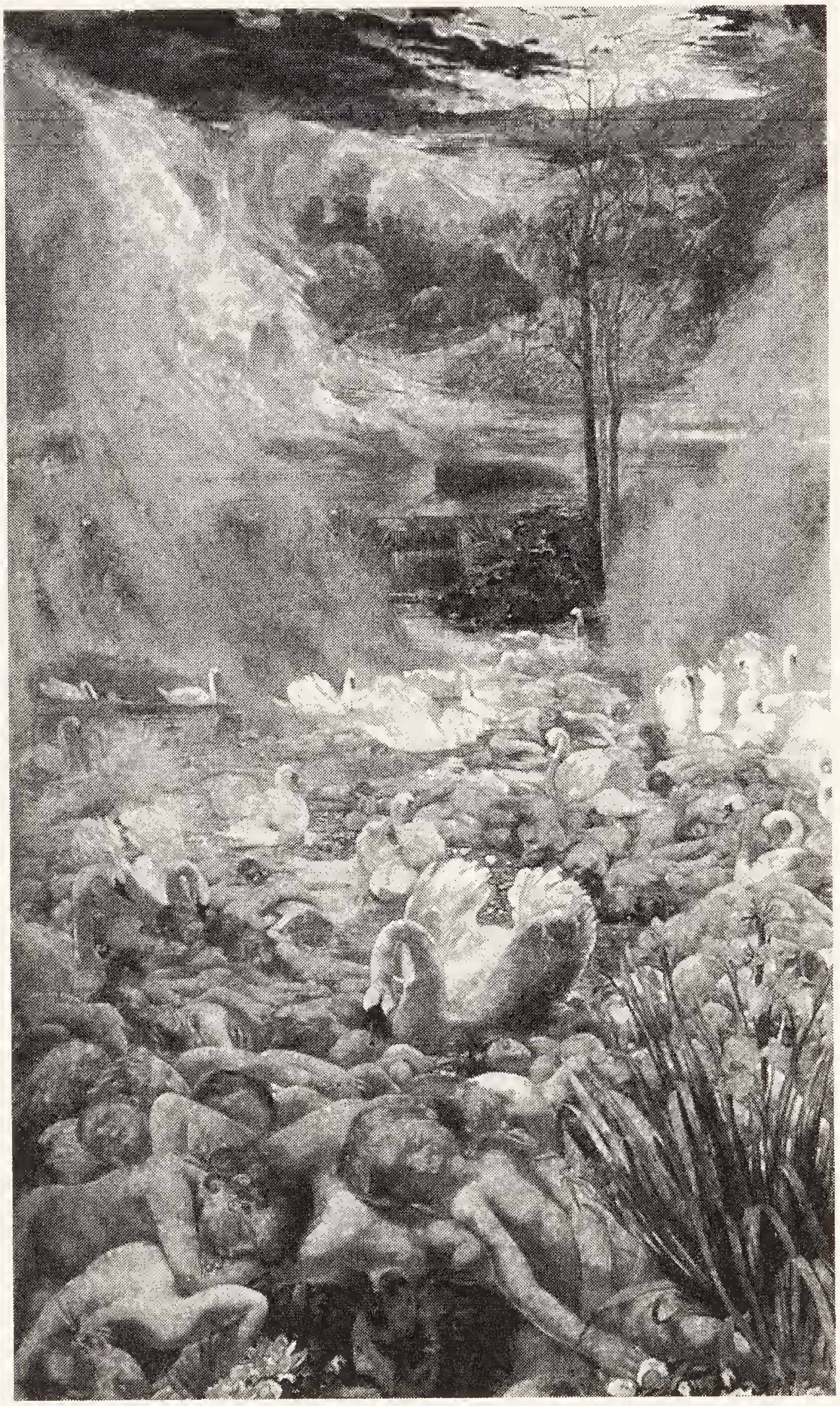
> *Effects similar to those of one to three drinks of alcohol.*

The disinhibitory effects, for some of us, are quite stimulating. Thus, some use light doses of G at work, like others use Xanax or Valium. Adepts of our way should immediately recognize the danger of dependence and habituation, and proceed accordingly, eyes open.

MEDIUM DOSE (1.0 TO 2.5 GRAMS):

Strong motor effects. Some disequillibrium, sometimes dizziness. Positive mood changes. Socializing: talking, dancing, listening to music. Laughing. Or for orgies, everyone feeling loose and randy. Like being inebriated without being drunk Or like being drunk without being foggy. It's difficult—the same adjectives apply, but it's different. Male erectile capacity generally increased, though orgasm can be delayed until the next morning. A big favorite of many of our more senior couples. Some women have also reported delayed orgasm, but the opposite seems more generally true.

In spite of impaired physical coordination, some very dear crazies I know like to go roller blading, reminiscent of those old rock climbers who would head for a moonlit face after a night of drinking.



THE LAKE, THE SLEEPING WATER,
LEON FRÉDÉRIC, 1898

HEAVY DOSE (2.5 TO 3.5 GRAMS):

Definite staggering. Oblivion is near. Some relish the euphoria, others succumb to nausea. The line between an enjoyable heavy dose and a seasick-like vomiting is extremely thin and blurry. It seems crazy to take a heavy dose of GHB without a mattress and comfy blankets nearby. An empty stomach maximizes the effects of GHB, the same or even more than it does the effects of alcohol. The presence of alcohol can dangerously increase the knock-out and nauseating effects of GHB, while inhibiting the positive empathogenic effects.

OVERDOSE:

> *The overdose range for GHB can be as little as 2 grams, depending on body weight and individual sensitivity.*

Overdose here means a deep, unrousable sleep, sometimes characterized as a coma. This state typically lasts from one to four hours. Some people use a dose between heavy and "over" to try to get a full night's rest in half a night. Those experienced enough to explore these dosages must be sure that those around them are fully familiar with the expected effects, and will not mistake such effects for a life-threatening poisoning. Waking up from a GHB overdose is *much* more pleasant than waking up from an alcohol overdose.

POISONING:

> *We're defining a level dosage above Overdose in order to highlight the effects of extreme overdoses. While many overdoses consist mainly of heavy sleep, some are life-threatening. GHB poisonings are characterized by very low breathing, convulsions or twitching, vomiting, complete nonresponse even to "deep pain," fixed pupils, etc. GHB poisoning victims should receive medical care immediately.*
>
> *—Erowid*

AFTER-EFFECTS:

Some experience a mild fog or grogginess the next day, but many others find the sleep so deep and restful that they awaken energized and refreshed. Some find that using GHB more than once or twice a week increases the occurrence of morning-after grogginess.

Poesis GHB is usually prepared by saponification, treating gamma-butyrolactone with sodium hydroxide. Like making soap.

The Ally

> *Saying "do you feel like taking GHB?" is like the opposite of saying "I have a headache."*
>
> *—Benny*

Effects Slovenly and sluttish. Tactile sensitization. "The most amazing known aphrodisiac for women." Not bad for men either.

> *Unless you fall asleep.*

Leisurely groveling in semiconscious prurience. Or like playing a consensual game of "date rape."

The Ally For talking about those hard-to-talk-about things. It's a sleeping pill for the Critic. Crying comes easily and cleanly.

Effects Because of the inebriating quality of GHB, talking can take on a certain rambling quality, and listening and hearing sometimes wander away from each other—you are not interrupting, but your thoughts are elsewhere. That is very different from the deep, empathetic listening so characteristic of MDMA.

The Ally

> *It's dangerous. It should be illegal. If you don't know what you're doing, you could fall down.*
>
> *—John Lilly, on GHB*

How Taken Usually dissolved in water. Tastes like baking soda, at least on a good night. Alcohol can lead to vomiting. Be sure you know your dose. Keep a little measuring cup, with a line on it. Some health-conscious users prefer the potassium salt.

Effects Sleep. Unless you stay awake partying.

The Ally On gifted occasions, lucid dreaming that can be entheogenic and oracular, like a full LSD flashback. All you have to do is step forward and ask the question.

THE GIFT

♌

"Try some of this," she said, "it quiets the Critic."

I thought of that, while trying to write, anxiety writhing me out of my chair.

CRITIC:

> *It's not good enough. Your friends are just being polite. No one will take it seriously. They probably won't even like it. You don't really even know the rules of good writing. You misspell elixir every time you write it.*

SELF:

> *So when's the last time you wrote a book?*

CRITIC:

> *I would not stoop to add mediocrity to the great canon of Western Culture.*

SELF:

> *No, you just sit there and criticize every new creation, every innovation, until it all stops and you are left with your tired and dusty classics. You leave it to time, the worms, and the spiders to make art for you. Thank you for your input. Without you, I might have ended up a real writer, and where would I be then? Busy writing "good" books on contract, one after another. Or in some staid lecture hall, feeling full of myself.*

> *Instead of like this, stumbling along mostly out of my mind, scribbling whatever comes.*

DREAM STUTTERS

Paths differ in emphases, if not in ends. Some tend towards heart, some to mind; some towards faith, some towards freedom. None of the cosmopolitan religions are using plant allies in any other than a symbolic way, though most of them have traces of sacred plants in their prehistory.

Why were power plants abandoned? Perhaps there were issues of efficacy or reliability. There is a clear repeating trend: initial universal access, then usage restricted to specialists, followed, finally, by symbolic ingestion by priests. There may have been issues of gender politics involved, from predominantly female plant knowledge in the Upper Paleolithic, at the least for food and fiber, to shamanism by men and women (or men *as* women), to a more and more strictly male priestly caste supporting a central state government. Ritual inebriation rarely seems to find favor with centralized states. But why is this?

Too many wild cards, perhaps. In a deck that centralized authority always wants to stack in their own favor. Ancient kings and emperors would close oracles the way dictators close newspapers. Marxists and other secular humanists argue that magic is reactionary, but this viewpoint seems to be based more on ideology than on history. One who has learned to face the gods directly has no fear of facing a king.

> *I kept rolling away from her, but she'd chase after me. Finally I stood up and said: "This is not a game. This is Sacred Space. This is Divination Space."*
>
> *The Council appeared instantly. They didn't look much like gods. Some of them were just kids. None of them looked special, or even particularly bright, but each of them glowed faintly with a yellow-orange aura. A ruddy-faced young man with short hair was staring at me with full psychedelic intensity. I wouldn't have thought of him as one of the allies, but there he was, and our rapport was total. He was one-of-those-to-whom-one-could-not-lie.*
>
> *"What about the medicine?" he asked.*
>
> *"I've been avoiding it," I said.*
>
> *He wasn't judgmental. He didn't care if it was just playing. He just didn't want equivocation.*
>
> *"And the medicine? Is it honest enough to share with the circle?"*
>
> *Maybe I shouldn't be doing this on a school night, I thought.*

Even the finest spiritual (and secular) traditions devoted to emancipation, compassion, and reverence have castigated, or at best neglected, "the Great D's":

Dreams, Divination, and Drunkenness.

They are the realm of Delusion, to which we might add Desire and Delight.

Dreams, to the reductionist, represent only illusion. Divination is called superstition, Drunkenness escapist stupor. Even Delight is suspect as prurient indulgence, while Desire is the root of suffering.

I saw the Medicine sitting at the end of the bed. It was myself. Or a part of myself: the public self, the worker, the engineer, the one keeping it together, the one out doing all the dirty work. He looked weary.

I called to him. I sang.

We proclaim our own axioms:

◑ Delight, as Blake said, is energy, the life force itself.
◑ Dreams are revelation, the substrate of consciousness.
◑ Divination is a momentary intersection, a chance to act.
◑ Drunkenness, for us, means enthusiastic rapture, ecstatic sobriety.
◑ Desire is the spark of the Universe, what there was before the Beginning.

Come home now, come home all you wandering tribe
Come back to the circle, it's safe now inside.

You've been so long out there riding alone,
Come back to the circle, come back to your home.

It's all drunkenness, it's all leaf-dreaming. In every realm. Let's dream in this world. Stress and personal crises are just your calls to the allies, to your powers. Fear is just a phase shift, their cloaking device.

Divination occupies that hazy ground between magic and science, between chance and teleology, between fate and freedom. It is difficult for us to believe in gods and spirits, the way we believe in molecules, or electrons. It's not that coincidence, as statistical apologists like to remind us, is so unlikely, but that divination is a feeling of *presence* that brings the hair on the back of the neck to attention.

You who are struggling, you who are brave,
Rest from your trials, there's no one to save.

You picked up the world on your shoulders I know
Now set down your burden, come home now below.

QUIJOTE & SANCHO,
DORÉ, 1863

Thus we sit. Thus we practice our Ground State training. To let our allies enter and say hello.

Afraid of
being reminded of
my own ignorance

I avoided meetings
with friends and
without realizing
began avoiding myself.

We, who work with demons,
must not succumb
to such denial,
must not, like Peter,
deny our own
teachers.

Therefore we return
to witchdoctor's corner,
laid out, long-legged & easy,

checking in on the neighborhood,
at curtain time,
and the curtains are rolling.

But there is a story, a whispered story. A story never committed to paper. That the medicine can be found in the poison itself. That we are surrounded and steeped in delusion, but that every apparition, every manifestation of the ever-changing and enchanting dance of Maya, is the Great Window, the Great Gate. This, indeed, is the delight of delusion. It is entirely fitting that the bodhisattva of the Maya Gate be of the lowest grade.

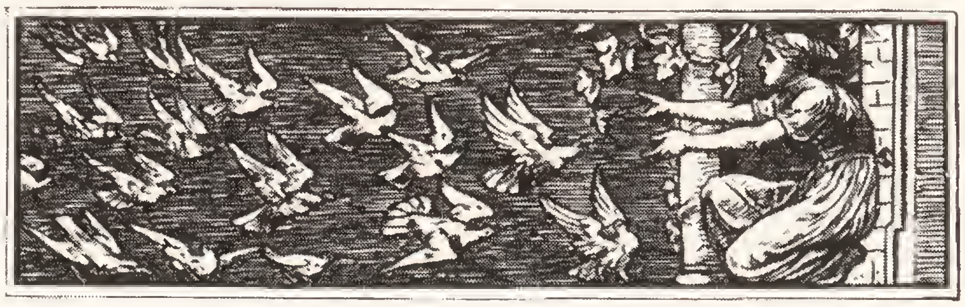
網明

"net" "light"

"Seductive Splendor," or "Light of Delusion," or "Ensnared Light." Mōmyō, the Bodhisattva of Delusive Wisdom. Jāliniprabha, who holds the shining net to save beings in all the six worlds.

We greet our mother, Maya: *Avidyā,* the root of existence.

The net that ensnares is the net that saves.



THE RETURN, CRANE, 1886

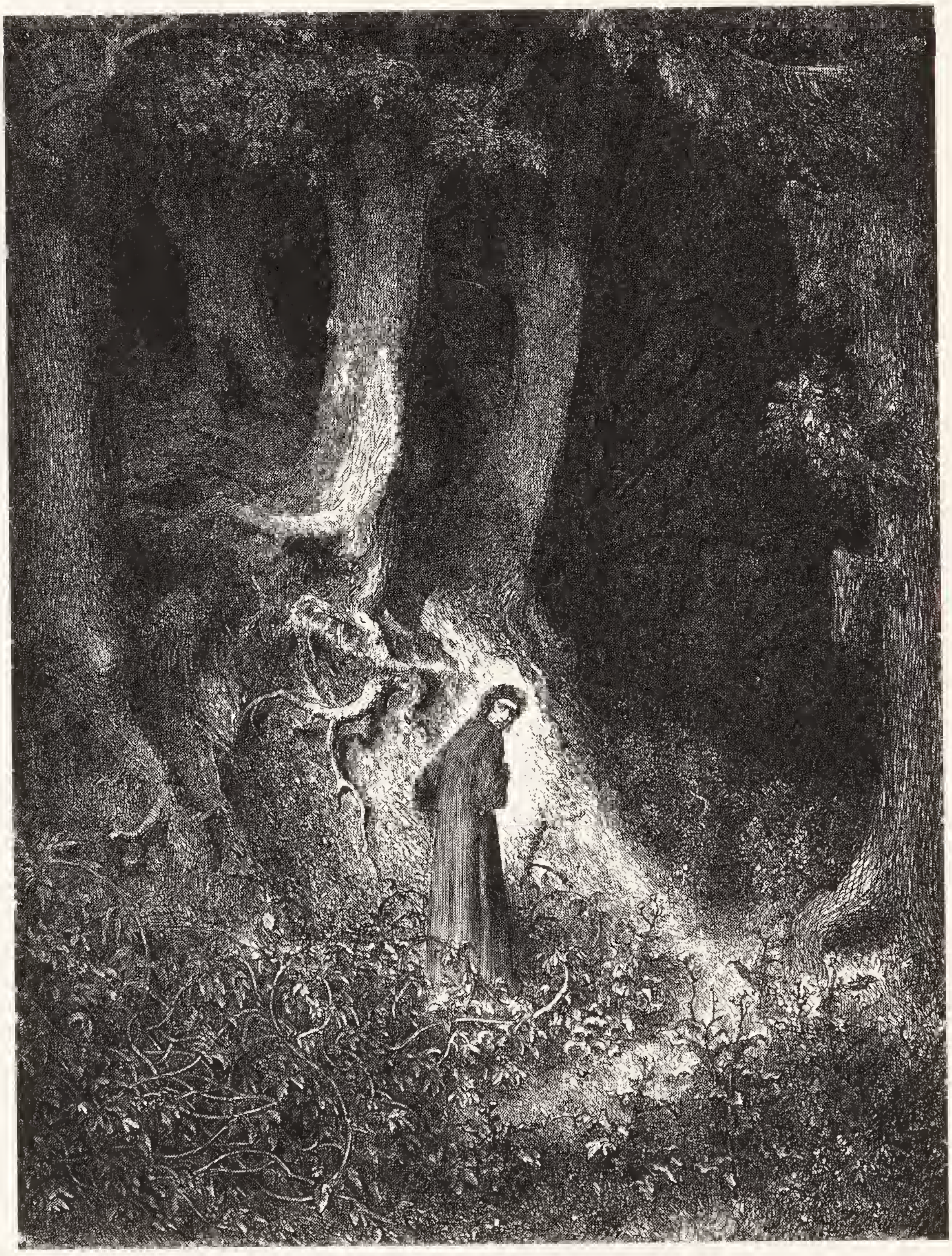
You've been so long out there fighting the wind,
Come back to the circle, find peace now within.

Come home all you spirits, come home all you sprites,
Come home all you poisons, come in from the night.

We believe we see solidity. Threads cross, both choices are taken. The two worlds exist in parallel, perhaps, at some future time, to cross again.

It's difficult to proceed. The story is told, but it's not quite right. It's just a snapshot, blurry at the center.

Birds chirp. And it's morning.



AT THE EDGE OF THE FOREST

REFERENCES

I. COMMENTARY

On the Nature of Poison

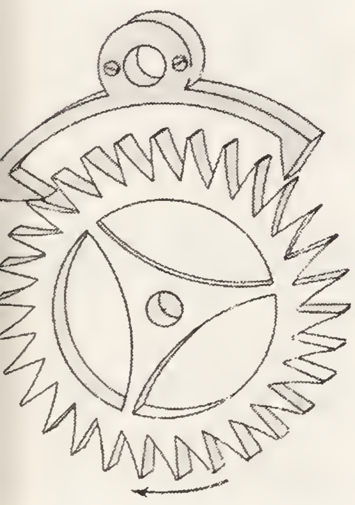
p. 3: Nietzsche quote from *The Wanderer and his Shadow.*

Nigredo: A Turn of Darkening

p. 7: Where "the man" here is Vicente Huidobro—see "Canto III" in *Altazor.*

Coffee

A senior art student at Amherst College, as a project for his "social sculpture" class, devised a 24 hour mock ban on coffee at the campus to raise awareness about drug law reform. Signs were posted about the health risks associated with coffee drinking and the alarming increase in coffee consumption among students. Coffee machines around the campus were emptied and turned off. The artist, Andrew Epstein, dressed up in a suit and held a press conference to explain the need for the ban. While many students were outraged (and booed), some nodded their heads thoughtfully. Friends of Epstein were posted around the campus selling "black market" coffee out of the backs of vans.



ANCHOR RECOIL ESCAPEMENT, INVENTED C. 1671

p. 23: Concerning the keepers of European herb lore, Daniel Schulke notes: "The demographic you suggest here is far from proven, nor is it culturally consistent throughout Europe or throughout time. For example, the Cunning Men of the British Isles (see Keith Thomas, *Religion and the Decline of Magic*), etc."

p. 25: Illustrating how any song written in ballad meter could be sung to any ballad tune, Gary Snyder once sang for me Blake's "Mock on, Mock on, Voltaire Rousseau" to the tunes of *Mary Hamilton, Barbara Allen,* and *The House of the Rising Sun*. Actually, Blake violates the fourteener in the second line and it works better if you drop the second spondee. You can sing most of Emily Dickinson's poems to *The Yellow Rose of Texas,* which is 7676. The best metrical index I've ever seen is in the old *Methodist Hymnal,* which lists hundreds of tunes, all arranged by meter, as an aid, I suppose, for hymn writers who need to find a tune to fit their lyrics. I spent many hours studying it in my youth, Sundays.

p. 35: A new study has found that high homocysteine levels are as strong a predictor of future Alzheimer's as is heredity. No causal link has been established, just the correlation.

On the plus side, the *Journal of Agricultural and Food Chemistry* (March 2002) reports that several chemicals in roasted coffee beans loosen the grip of the bacteria that cause tooth decay.

p. 39: Further underscoring the destructive power of a global economy on peripheral countries, in 2001 world coffee prices plummeted to a record low. Coffee growers in many poor countries face utter ruin, and workers have been laid off. (Despite Adam Smith, retail prices in developed nations have not fallen.) Coffee cooperatives have fared slightly better. As of this writing, it is possible to buy "Fair Trade" coffee in most American cities (even at some Starbucks).

Tea The story of Elder Lang and the tea brazier gods is in case 48 of *The Blue Cliff Record*. The Lin-chi case is from the *Transmission of the Lamp* (Chung-yuan, 1969), and is part of the *Record of Lin-chi*. Not all versions specify that Lin-chi was working in a tea garden. The Tung-shan story is section 28 of the *Record of Tung-shan* (Powell, 1986).

The great Ch'an master Chao-chou (*Joshu* in Japanese) is best known for his famous koan about the dog and Buddha-nature, the first koan given to Zen students in many lineages:

> *A monk asked Chao-chou, "Does a dog have Buddha-nature?"*
> *Chao-Chou answered, "Mu."*

Here is the whole case of Chao-chou and the tea, from Foster & Shoemaker's *Roaring Stream,* which book is recommended.

> *Once Chao-chou asked a freshly arrived monk, "Have you been here before?"*
> *"No, I haven't," the monk answered.*
> *"Have a cup of tea," said Chao-chou. Then he asked another monk, "Have you been here before?"*
> *"Yes, I have," replied the monk.*
> *"Have a cup of tea," said Chao-chou.*
> *The head monk asked the master, "You instructed the monk who hasn't been here before to have a cup of tea; I say nothing about that. But why did you tell the monk who's been here before to have a cup of tea?"*
> *"Head monk!" cried Chao-chou.*
> *"Yes, master?"*
> *"Have a cup of tea!"*

And I can't resist adding one more of Baisaō's poems, from the same book, based on the translation by Norman Waddell.

> *I emulate old Chao-chou:*
> *"Have a cup of tea!"*
> *I've stock for a thousand years,*
> *But no one's buying.*
> *If only you would come*

And take one good drink
The ancient craving
Would instantly cease.

Lu Yü wrote: "The essence of tea is moderation." True enough, I guess, unless one gets too deeply immersed in the subject.

Oh well.

Cacao p. 107: Some ungodly men: Investigative journalists Sudarsan Raghavan and Sumana Chatterjee, in a series of articles published in Knight Ridder newspapers (June, 2001), exposed the use of child slavery on cacao plantations in the Ivory Coast, the source of almost half of the world's chocolate. The problem has been exacerbated by the falling prices of cacao beans on the world market, another example of the social consequences of global economy on peripheral societies. Most of the boys are from neighboring Mali, sold to Ivory Coast farmers by middlemen. Some industry spokesmen preferred the term "indentured servitude," but as the boys are sold, locked up, and often beaten, slavery seems a correct description.

When Knight Ridder contacted the Chocolate Manufacturers Association, a trade organization, they at first stated that they were not aware of the use of slaves on Ivory Coast cacao plantations. As the Knight Ridder investigation continued, the CMA has accepted that such slavery is a fact and has funded a survey of 2000 cacao farms in the Ivory Coast.

Cadbury, following their progressive tradition, does not buy cocoa from the Ivory Coast. Other companies, such as Hershey Foods, Russell Stover Candies, Archer Daniels Midland, Godiva, and Maxfield Candy, expressed grave concern and promised to do what they could to address the problem. A number of large companies, including Mars (#2 chocolate manufacturer in the United States), Nestle USA, Blommer Chocolate, Ben and Jerry's Homemade, and Kraft Foods did not respond to the reporters inquiries about their use of Ivory Coast chocolate.

The reporters believe that boycott action would be counterproductive, only driving world cacao bean prices further down. The best solution is to raise public awareness of the problem and to extend the ideas of "Fair Trade Coffee" to chocolate. Cocoa and chocolate were not included in the list of products that federal agencies are prohibited from buying if made with forced labor. That oversight should be corrected.

●

Xochitl and Gordon Wasson: A (Not So) Brief Poetic Critique

Wasson contends in *The Wondrous Mushroom* that *xochitl* in Pre-Conquest Nahuatl poetry is "a figure of speech for the entheogens and the entheogenic experience." First, Wasson tends to lump all the cultures and tribes of ancient Mexico together into one Mesoamerican culture. There are problems with this lumping. No matter how many of their statues they copied, the Romans were not Greeks. Within the Aztec Empire there were many cities and many peoples. And even within Tenochtitlan the Mexica probably constituted less than half of the population, and among the Mexica the commoners and nobles had their own lifestyles and likely differing belief systems. While it is clear that mushrooms were in common use by the "folk," or groups of them, the attitude of the Mexica nobility toward mushrooms seems much more equivocal.

> *The bad noblewoman is infamous, very audacious, stern, proud, very stupid, brazen, besotted, drunk. She goes about besotted; she goes about demented; she goes about eating mushrooms.*
> *The prostitute lives like a bathed slave, acts like a sacrificial victim, goes about with her head high—rude, drunk, shameless, eating mushrooms.*
> *The Bad Youth goes about becoming crazed on both kinds of Daturas and mushrooms . . .*
>
> *—Sahagún*

Nor is it clear that the Aztecs had any such concept as "entheogen" or "entheogenic," as Wasson does. That is our idea, not theirs. I find no evidence that mushrooms were classed together with morning glory seeds. They were distinct animals, we might say. But by trying to fathom just how the Aztecs did view the interplay of plants with medicine, ritual, and recreation, we might learn something about our own assumptions.

Wasson himself asks several of the right questions. Near the end of *The Wondrous Mushroom* Wasson offers several perceptive paragraphs about the differences between the herbal knowledge of the folk tradition and that of the written herbal. The physicians of the Aztec intelligentsia openly disdained the shamans and folk healers, though, as was their inclusionary style, they made some accommodation for them in state ceremonies.

TLINGIT SHAMAN RATTLE, C.1800

The false wise man, like an ignorant physician . . .
He has his own traditions and keeps them secretly . . .
A lover of darkness and corners,
a mysterious wizard, a magician, a witch doctor,
a public thief, he takes things.
A sorcerer, a destroyer of faces.
He leads the people astray.
—Leon-Portilla, Aztec Thought and Culture

Wasson also notes the disparity between the chanting of the mushroom *veladas* he witnessed and the polished poetry of the flower-songs: "At opposite ends of the spectrum." He asks how they can be reconciled, but he never provides a satisfactory answer.

Wasson believed that Nahuatl poetry was the result of the "*élite*" [sic] of a pure culture of "Early Man" gathering annually about a giant effigy of a mushroom, ingesting mushrooms, then composing and singing verses in praise of the mushrooms amidst a noble entheogenic *agape.* He dismisses Father Garibay's claim that mushrooms were not a part of such events and states "how jejune, how flaccid, is this poetry stripped of the divine inebriants!" As to the possibility that the songs praising the fragrance of a flower might be just that, and not the praising of the fragrance of the mushroom, Wasson writes:

> *They were not only cultivated men but men of power in their world. Effeminacy is not a word that could be linked to them.*

Ironically, Tlacaélel's daughter, Macuilxochitzin, wrote poems about flowers—but all in the context of warfare.

With divine flowers,
with flowers of war,
is covered,
with these becomes intoxicated
he who is on our side.
—tr. Leon-Portilla

Wasson lists two dozen occurrences of *xochitl* from the four volumes of Garibay's *Cantares Mexicanos* and glosses almost all of them as "wondrous mushroom potion," or "entheogenic potion." But exactly half of Wasson's whole list are found in one poem, Nezahualpilli's "Song During the War with Huexotzinco," where the "flowery liquor of the gods" is much more likely the intoxication of blood than that of mushrooms.

Yaoxochioctica,
yhuintitiaqui a nopillotzin,
With the flower of the liquor of war
my prince has become intoxicated,
—Leon-Portilla, Fifteen Poets of the Aztec World

Leon-Portilla's translation may be questioned, certainly, but that blood may be a flower is well-attested by poetic usage:

That Noble Flower

. . . For now men fall in battle and that noble flower
flowing from their bodies
Tells nothing except how beautiful they might have been.
—Robinson Jeffers, Be Angry At the Sun

Nezahualpilli's poem contains numerous constructions mixing flowers, blood, war, and intoxication:

Vomiting blood they go
the owners of the spoiled flowers.
. . .
there the Cuxteca are intoxicated
with the shield's flowery liquor,
. . .
my great lords, those intoxicated with death,
. . .
the intoxication of strength

We do know that chocolate was a part of a soldier's daily rations while on campaign, but it seems more likely that the admixture was maize than mushrooms (Vietnam notwithstanding).

Wasson builds his thesis that entheogens are the key to Nahuatl poetry in five sections. I don't wish to argue that there are not allusions to altered states of consciousness in the poems—such is certainly the case—so I will not attempt a methodical critique. The problem that I see in Wasson's paper is more one of *approach*. But a brief overview is in order.

First, Wasson presents four poems, or stanzas from poems, from Father Garibay's *Poesia Nahuatl,* in which "flowers" are interpreted as meaning "entheogens": inebriating mushrooms or morning glory seeds. I will discuss the use of "flowers" in these poems and in other parallel constructions.

Second, Wasson points out that the verb *cueponi,* usually translated as "open their corollas," has another meaning: to burst forth as a chick from an egg (to hatch). Wasson cites the "bursting forth as from an egg" as evidence that mushrooms rather than flowers are the subject of the verb. I think "hatch" only broadens a metaphor principally concerned with "coming into being." Besides, *Psilocybe* mushrooms lack the universal veil that is so conspicuous in the *Amanita* genus, and possess the "hatching" quality less than, say, a flower blossom emerging from a bud.

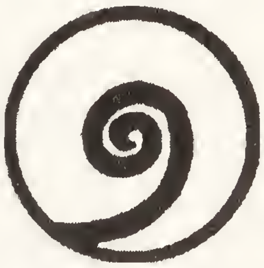
Third, Wasson points out the deep camaraderie spoken of by the poets associated with their gatherings, and how much it sounds like the bonding experienced among fellow entheogenic travelers. To this I would only point out that camaraderie between poets, in spite of their often petty backbiting, is not dependent on the sharing of plant entheogens. Li Po and Tu Fu come to mind, as do Shelley and Byron. Among the Inuit, the special relationship that develops between two poets is given a name: "song cousins." They swap wives when they are together and are able to criticize each other, satirize each other's songs, and generally tell "anything." The only entheogens of these people of the snow are the great expanses of the snow itself.

> *All songs are born to man out in the great wastes. Sometimes they come to us like weeping, deep from the pangs of the heart, sometimes like a playful laughter which springs from the joy that life and the wonderful expanses of the world around us provide. We do not know how songs arrive with our breath—in the form of words and music, and not as ordinary speech.*
>
> *—Kilimê, East Greenland Eskimo, recorded by Knud Rasmussen*

After friendship, Wasson considers synesthesia in Nahuatl poetic idiom, as in this poem in praise of Nezahualcoyotl:

> *On a mat of flowers*
> *you paint your song, your word,*
> *prince Nezahualcoyotl.*
> *Your heart is in the painting,*
> *with flowers of all colors*
> *you paint your songs, your word,*
> *prince Nezahualcoyotl.*
>
> *—tr. Leon-Portilla, 1992,*
> *cf. Garibay's translation in Wasson, 1980.*

But synesthesia is only one possible explanation. Nahuatl books, the painted scrolls, filled with colors and flowery drawings, were the repository of the sacred word. Words *were* painted, literally, especially the words of the gods. And as sacred words are painted into scrolls, this whole world is the painting of a god.



TIBETAN ORIGIN OF THE UNIVERSE

Your heart lives in the painted page,
you sing the royal fibres of the book.
You make the princes dance,
there you command by the water's discourse.
He created you,
he uttered you like a flower.
He painted you like a song:
a Toltec artist.

—from Brotherston, Image of the New World,
quoted in Clendinnen, The Aztecs.

Besides, "seeing words" as a poetic trope is almost cliché.

Easy for you to say, friend, you've seen them.

Wasson closes his chapter on "flowers" by discussing the common metaphor *anelhuayo,* "without roots." I say more about this later, but the gist of the term, as I read it, has to do with "impermanence," and therefore "unreal," the corollaries of which the poets then explore.

Wasson never mentions *difrasisma,* the linking of two nouns to create a new idea, and a salient characteristic of Nahuatl poetry. We have already seen one of these *difrasismas: yollotl-eztli,* "heart, blood," used for chocolate. Other *difrasismas* are *in cueíl, in huipilli,* "skirt, blouse," referring to a woman in a sexual context; *in atl, in tépetl,* "water, hill," a town; *tlilli, tlapalli,* "black ink, red ink," the scroll painting, wisdom; and *in topan, in mictlan,* "the realm above, the region of the dead," both of which are realms that can be visited by the *nanahualtin,* the shamans, but that together connote all that is truly transcendent. The most important and recurring *difrasisma* in Nahuatl poetry is *in xóchitl, in cuícatl,* "flower, song." Flower-song is used to represent poetry itself, and the poetic act. Leon-Portilla glosses it as "metaphor," or "symbology," stressing something multivalent and abstracted whose absolute meaning can never be pinned down, an "as-ifness." But perhaps even better we can look on it as connoting "creative imagination."

Not only is *xóchitl* a common morpheme in the construction of a wide variety of words, by itself or in *difrasismas,* but the word also occurs in many different semantic contexts. *Xóchitl* is used to describe a man's desire for a woman of pleasure by Tlaltecatzin, one of the earliest poets of Texcoco. Flowers are used to refer to warfare, to spring, to fertility, to blood (especially sacrificial blood), and to cacao. The poets stretched the word to its fullest: its meaning is closest to "essence."

a flower, a book, a thought:
dried grass, or rain on the roof

If the flower is the essential, the song is the existential: flowers burst forth, but you have to sing your song. If we admit this concept of "essential becoming," the flower references soar to elegance: there is nothing "jejune" or "flaccid."

It is quite true that the role of psychoactive plants in Mesoamerica was largely ignored for a long time, and Wasson's role in correcting this error is paramount. But Wasson is somewhat unfair in his criticism of Miguel Leon-Portilla, who mentioned mushrooms some years before Wasson published his paper on *xochitl:*

> *If this life is only a dream, our words (because they are earthly) are incapable of coming near to "what transcends us, the beyond." In man's effort to forget that "one day we must go, one night we will descend into the region of mystery," he can seek consolation in the drunkenness produced by mushroom wine.*
>
> *—Leon-Portilla, Aztec Thought and Culture*

Mushrooms, where intended, seem to be mentioned explicitly, as in *nanacaoctli,* "mushroom inebriation," or *xochinanacatl*, the "flowery mushrooms." (Nahuatl double noun constructions are ordered, the first word modifying the second.) But this very explicitness argues against Wasson's thesis that the poets used "flower" to refer to mushrooms.

The best documented use of hallucinogenic mushrooms among the Aztecs, apart from the perjorative slurs on their use by commoners and fallen women, is among the *pochteca,* the long-distance cacao merchants who were hardly Aztecs at all. The *pochteca* would eat mushrooms and then continue by drinking chocolate throughout the evening. In these sessions the merchants would see their destinies. Some would weep, glimpsing death or calamity, others would be joyful, seeing that their future would be successful. All in all, according to the report, which could be biased, lamentations seemed to have predominated.

> *Oyanoconic in nanacaoctli, ya noyol in choca.*
> I have drunk the liquor of mushrooms and my heart weeps.

Moctezuma is reported to have served mushrooms to the kings of enemy cities, such as Tlaxcala, or their official envoys, at a state dinner called the Feast of Revelation. Moctezuma I had invited enemy kings to Tenochtitlan, but the practice had lapsed until Moctezuma II revived it. Again, it seems that, as with the merchants, the purpose of the mushrooms was in revealing the future. After one of these feasts, perhaps the last—as the Spaniards were marching westward from Veracruz at the time—Moctezuma had a vision that frightened and disturbed him deeply. The vision prompted him to try to bribe the Spaniards into turning around instead of confronting them—a stratagem that proved ill-fated indeed.

> *Meanwhile, in the countryside, in the mountains, the nightly mushroom ceremonies continued as they had for centuries.*

Did the Nahuatl poets know about the mushrooms? Certainly. From personal experience? Almost certainly, knowing the ways of poets. But we must remember that court poetry, taking Japan as an example, often invoked images purely through formalism—even Saigyo's invocations of nature have been criticized (incorrectly, according to Gary Snyder) as being merely formal. Were mushrooms the essential base of Aztec poetry, as Wasson maintains? I think not. But in any case, reading every occurrence of "flower" as "mushroom" leaves the poems one-dimensional—demeaning both the poems and the depth of the insights available from the sacred plants themselves.

> *Only poetasters are content with one level of meaning.*
> *It has ever been thus, in every land and in every time.*

Echoes of this reductionism are with us today when certain entheogenic spokesmen declare that *any* religion, and by extension any religious experience, *not* brought about by ingesting entheogenic substances is a sham based on "placebo effect." These people, whom we might term "mystical hardheads," seem to miss the forest because of (understandable) fascination with one particular tree. As it were.

> *Enough to make one prefer "hallucinogen" to "entheogen."*
> *Right. And then there are those of us who think we're hallucinating all the time.*

Perhaps the greatest of the Nahuatl poets was Nezahualcoyotl, king of Texcoco. Nezahualcoyotl lived from 1402 to 1472. He inherited two ancient traditions: that of the Chichimecs and that of the Toltecs. His father, Ixtlilxochitl the Elder, was instrumental in bringing about a resurgence of Toltec culture and fusing it with that of the Chichimecs. Nezahualcoyotl had a Toltec tutor, and thus a line to the wisdom traditions of Quetzalcoatl and Teotihuacan. It's not really surprising that the best poets were from Texcoco and Tlaxala, where the Toltec tradition was strongest, rather than Tenochtitlan. The Aztecs of Tenochtitlan have a way of coming off as Toltec "wannabes."

> *Choices, always choices: Ovid or Virgil, Pound or Eliot, Pascal or Descartes, Nezahualcoyotl or Tlacaélel.*

Nezahualcoyotl grew up amid palace intrigue. He saw his father slain by the Azcapotzalcans, and it was another poet, Tochihuitzin (who later became ruler of Teotlatzinco), who saved his life by helping him escape. Nezahualcoyotl spent part of his exile in Tlaxcala.

During his years of exile Nezahualcoyotl made friends and established alliances, and became known for his wisdom. He was related to the Mexica through his mother, who was the daughter of the second ruler of Tenochtitlan. It was the alliance of Nezahualcoyotl with the Mexica that conquered the Tecpanecs of Azcapotzalco and Coyoacan, and made Nezahualcoyotl the ruler of Texcoco.

But if Nezahualcoyotl was Solomon (with some of David thrown in— Nezahualcoyotl once had the poet Cuacuauhtzin sent to his death on the front lines in order to marry his wife), Tlacaélel was Samuel, the power behind the throne. Texcoco was clearly subservient to Tenochtitlan. It is said that Nezahualcoyotl was against human sacrifice, but that all he was able to accomplish in Texcoco was to end the sacrifice of children. He is known for his sense of justice, and for writing "wise" laws. He was also an engineer and an architect, and designed some of the causeways and water systems of Tenochtitlan.

Nezahualcoyotl seems to have believed that beyond all the gods that were worshipped there was something transcendent, the place whence flowers spring, the home of "He-Who-Invents-Himself." Because he was under the hegemony of Tenochtitlan, he had to build a pyramid to Huitzilopochtli. But opposite the pyramid he built another temple, facing it, a tower with different floors representing the different layers of the cosmos. In this temple the shrine room was empty: there was nothing, no god at all. This was in honor of Tloque Nahuaque, "Lord of the Close and Near."

I am intoxicated, I weep, I grieve,
I think, I speak.
Within myself I discover this.
Indeed, I shall never die,
indeed, I shall never disappear.
There where there is no death,
there where death is overcome,
let me go there.
Indeed I shall never disappear.

—Nezahualcoyotl

At can on ayan micohua, "Where-Death-Does-Not-Exist," is also referred to as *Quenonamican:* "Where-In-Someway-One-Exists." Transitoriness was a concern of all the Aztec poets, but especially to Nezahualcoyotl.

Are You real, are You rooted?
Is it only as to come inebriated?
The Giver of Life:
is this true?
Perhaps, as they say it is not true?
May our hearts
be not tormented!
All that is real,
all that is rooted,
they say that it is not real,
it is not rooted.
The Giver of Life
only appears absolute.
May our hearts
be not tormented,
because He is the Giver of Life.

—Nezahualcoyotl

This poem should clarify the poet's conception of *anelhuayo,* "without roots."

The It that Isn't.

Like a monotone, Wasson leaps upon "without roots" as proof that the poets were talking about mushrooms. (Why does he keep *doing* that?)

Rootless is the source of ALL arising, my brother.
Have you not ever eaten of the mushrooms?

But the transitory nature of existence raises a significant poetic dilemma. In a world where everything is rootless, is it possible to point to "It" with a word?

Perchance, oh Giver of Life, do we really speak? . . .
it may be that on earth no one speaks the truth.

—Leon-Portilla, p. 74

Is there perchance any truth to our words here?
All seems so like a dream, only do we rise from sleep,
only on earth do our words remain.

—Leon-Portilla, p. 74

He goes his way singing, offering flowers.
And his words rain down
like jade and quetzal plumes.
Is that what pleases the Giver of Life?
Is that the only truth on earth?

—Tecayehuatzin, tr. by Leon-Portilla

Destined is my heart to vanish
like the ever wilting flowers?
What can my heart do?
At least flowers, at least songs!

—Nezahualcoyotl

Is it possible to speak a true word at all? That is indeed a most important question.

It's like, you have finally reached a door,
you raise your hand to knock
and at that moment the door disappears—
is it possible
to speak anything
true at all?
the hand remains suspended.

(Who SAYS chocolate isn't entheogenic?)

More chocolate!

That the poets drank chocolate is clear. Foamy chocolate. Flowery chocolate. So they could share flowery songs, dream-stirring songs.

Zan nixochitlatlaoncoya . . .
noxoxochipoyoncuica.
—Tecayehuatzin

Some of the poems evoke themes similar to Hindu mythology: the Universe as Vishnu dreaming, or all of existence as Maya.

With flowers You paint,
O Giver of Life!
With songs You give color,
with songs You shade
those who will live on the earth.
Later You will destroy eagles and tigers:
we live only in Your painting
here, on the earth . . .
—Nezahualcoyotl

My implanted word is sprouting,
our flowers stand up in the rain.
The cocoa flower gently opens his aroma,
the gentle peyote falls like rain.
My song is heard and flourishes.
My implanted word is sprouting,
our flowers stand up in the rain.

—Cantares Mexicanos, tr. Gordon Brotherston and Ed Dorn,
Image of the New World, 1979.

I want to be fair to Wasson. A number of the poems, especially those from Texcoco and Tlaxcala, contain images so resonate with higher forms of psychedelic experience that it would be extraordinary if such experience were *not* part of the intended metaphor. Leon-Portilla says as much in *Fifteen Poets of the Aztec World* in his notes on the poems of Xayacamach (though without mentioning Wasson).

Nezahualcoyotl's "Song of Spring," more than any of the other poems perhaps, could be read as an invocation of Xochipilli. If such were not the explicit meaning of the poem, we can be sure that a poet of Nezahualcoyotl's stature was not unaware of its implicit significance.

Be joyful with the intoxicating flowers,
those which are in our hands.
Now put on
the necklaces of flowers.
Our flowers from the season of rain,
fragrant flowers,

now open their corollas.
There flies the bird,
he has known the house of God.
Only with our flowers
we are happy.
Only with our songs
does sadness disappear.
O lords, in this way
your sorrow is put to flight.
The Giver of Life invents them,
he has sent them down,
the Inventor of Himself,
the joyous flowers,
with these your sorrow is put to flight.

The ubiquity of "intoxication" in Nahuatl poetry is a clearer pointer to the familiarity of the poets with altered states of consciousness than is "flower."

The flowering chocolate drink is foaming,
the flower of tobacco is passed round.
If my heart would taste them,
my life would become inebriated.
—Tlaltecatzin, p. 240

Is it only as to come inebriated?
—Nezahualcoyotl

The metaphorical equation of flowers (mental flowers, physical flowers, blood flowers, the flowers of desire, the flowers of evanescence, this life, this world, and yes, psychoactive plant flowers, cacao flowers and others—however creative imagination manifests itself) with intoxication may be the pinnacle of Nahuatl philosophy. But it is to this very inebriation that Wasson specifically denies metaphorical meaning. On the poison path that is a fatal blunder.

Depth becomes shallowness.
It suffocates the gods, and they die.
It reifies sobriety.
It relegates playfulness to children.
You point and point, but there is always one
who keeps staring at your finger.

In the presence of Nezahualcoyotl—a major poet who would stand as such in any culture, in any time—Wasson starts talking about "Early Man." He reduces the poet's metaphors to a symbol, which is no metaphor at all.

Is your parochial indignation at this fellow
traveler, whose secure accomplishments surpass any
you might even dream, now quite, quite spent?

Yes. Almost.

(for J. O.)
If we consider a thing of special wonder—
such as a goblet of foaming chocolate
or the true love of a wise woman,
and name the first Jade Skin / Fire Mind,
and name the second Atlantis / Orchid;
though the cup intoxicate us with delight,
and the woman empty us beyond death,
it does not mean
that because "superior entheogens"
may also do these things, that
an Atlantean Orchid is an entheogen.

Yes. Done.

The izqui-xochitli, the cacahua-xochitli,
with eagerness have I longed for them,
empty wisdom had I.
—Nezahualcoyotl

◆

Notes for Wasson section

The Wondrous Mushroom was published in a limited boxed set along with *The Mushroom Velada* and a set of records of Maria Sabina. There was also a trade edition with tapes. The limited edition is actually double boxed: *The Wondrous Mushroom* has its own slipcase within the larger box, and even then the tops of the pages are trimmed and gilded.

Keats may have been correct, so let's dwell on, to paraphrase Charles Olson, "the aesthetics of the thing" (Olson said, as I recall, the "kinetics" of the thing, but no matter). *The Wondrous Mushroom* is quite beautiful, but as a booklover and a former bookbinder, I would call it precious rather than elegant. You don't really need to gild the tops of the pages if you have a slipcase. And the style of the writing matches the binding—it's overwritten. Compare the self-conscious preciousness of *The Wondrous Mushroom* with the much cleaner prose of Wasson's earlier essay on *xochitl* in the Botanical Museum Leaflets.

And there is a question of appropriateness. I'm of the old school that still thinks there should be a connection between form and function. Precious binding should be for timeless words: poetry or established classics, not for scholarship. Scholarship is in flux, it's temporal. Even *Seven Pillars of Wisdom* is a marginal case, forgivable only because Lawrence set the type himself, and because it's autobiographical rather than theoretical. Scholarship, like science, must be tested with review and further inquiry. The binding should reflect that—good covers, good paper, flexible sewing, ample margins, but a working book, not a museum piece with a frame around it.

In his doctoral dissertation, Abraham Caceres argues that the flower/song glyphs were evidence of a "psychodysleptic ASC" (altered state of consciousness). He argues that Wasson is partially correct in identifying Xochipilli as the God of Rapture, but that Wasson ignores that Xochipilli is also the deity of song and dance. In this I agree. He likewise reproves Leon-Portilla for overlooking the musical component of *in xochitl, in cuicatl,* while agreeing with his metaphorical interpretation of the phrase.

Caceres believes that the poets entered a shamanic state through "auditory driving," and suggests that the plant involved was *sinicuichi*, or *Heimia salicifolia*. Unfortunately, he presents very little evidence to back up this assertion, and no bioassay. Caceres attends a mushroom ceremony, thus, I suppose, fulfilling the "field work" requirement for his Ph.D, but it is never clear what relevance the mushroom ceremony, or his data on *ololiuhqui*, has to Nahuatl court poetry. Sadly, such one-dimensional book-scratching all too often typifies what passes for scholarship in humanistic graduate departments.

Black Drink Translations of the idioms by Thomas Christensen.

Translation of the tango song by Robert Tindall.

Kola p. 118:

> *Initiates of Santeria religion chew* obi *as an invigorating devotional sacrament. The fresh nut is frequently accompanied by seven seeds of* atare (Aframomum melegueta*), one for each of the Seven African Powers, which gives rise to a brisk, illuminating heat encompassing the entire head, acting in synergy with the virtues of the Nut.*
>
> *—Daniel A. Schulke: The Green Mysteries*

Schulke states that there is no substitute for the fresh nut.

Ma Huang p. 131: I am rather suspicious of the identification of the *Ephedra* pollen found in the Shanidar burial at species level. Today *Ephedra altissima* grows in more southern latitudes. *E. altissima* does contain ephedrine. Flattery (2000) states that the *Ephedra* species in the area of the Shanidar site do not contain ephedrine. However, 60,000 years gives plants plenty of time to move around.

Support for *Ephedra* as soma is found in Mahdihassan (1963, 1981, 1982, 1983, 1987, 1989), Falk (1989), Nyberg (1997), Parpola (1997), and Qazilbash (1960). S. Mahdihassan published his first article, on the lac insect, in 1918. He continued publishing a dozen or more articles every year, in English, German, and French, through 1991, when, I can only surmise, he died at the age of ninety-eight. His interests covered biology, chemistry, botany, languages, soma, and the history of alchemy, especially Chinese, Indian, and pre-Alexandrian alchemy. One of his alchemical articles lists a number of alchemical terms in Chinese, Sanskrit, and Greek. Much of his evidence of the soma/*Ephedra* equation is important, such as citing verses in the *RgVeda* and the *Avesta* that the soma plant was much-branched, was like a bundle of arrows, was as tall as a man, and citing the continued use of *Ephedra* as a ceremonial Elixir. His assertion that soma is a Chinese loan word derived from *huo ma,* "fire hemp," is not tenable, as (David Flattery pointed out to me) the Indic/Iranian phonological shift s→h was unidirectional. Steve Aldridge (in personal communication) has also suggested a Chinese origin of the word soma, but through *su ma,* as "invigorating plant."

蘇麻

su ma

The characters today refer to soda. Perhaps. But the easiest explanation is the one generally accepted by scholars, that soma is derived from the Proto-Indo-Iranian root **sau-* "to crush or grind with a pestle in a mortar." Mahdihassan notes that the Sanskrit *kship,* mentioned in RV.9.79.4, means "jointed, like a finger."

Mahdihassan believes that *Ephedra* was the drink of longevity in ancient Indian alchemy, before this function was filled by mineral drugs such as cinnabar through contact with the Chinese. If Mahdihassan's identification of *Ephedra* as soma is correct, verses in the *RgVeda* extolling soma as the drink of immortality are understandable from an alchemical context. Whether or not the idea of the Elixir entered China through the Tarim Basin and Dunhuang, belief in such an elixir was common among Taoists by the fourth century BCE. Plant-mineral mixtures, such as colloidal gold, became favored over purely vegetable drugs, and later were replaced by all-mineral drugs such as cinnabar (which, as Mahdihassan points outs, is the color of the soul: blood-red). The colloidal gold, *Chim-I,* followed the Silk Road into the Near East where it became *alchemy,* and thence west to Alexandria.

Falk states that the Labasūkta verse (RV 10.119), where a winged creature, after consuming soma, touches the earth and sky with its wings, does not imply that soma has hallucinogenic effects on human drinkers. He puts more importance on the verses where soma prevents sleep, is an "alerting drink," invigorating, etc. *Ephedra* fits the common Vedic (also Avestan) reference to *amśu* "plant-fibers, stalks," and also the color terms *hari/zairi,* which he glosses as "yellowish green to green." Falk notes that both soma and *Ephedra* are characterized by nodes; that *Ephedra* grows in the mountains; that the taste of *Ephedra* is *tïvrá,* "sharp"; that *Ephedra* is "of good scent," as is haoma in the *Yasna* (10.4); and that *Ephedra* has the aphrodisiacal properties associated with soma/haoma.

Nyberg summarizes botanical evidence for several soma/haoma candidates and concludes that *Ephedra* best meets the textual and pharmacological requirements. He was, however, unable to replicate the Russian finding of *Ephedra* pollen in the samples he received from Togoluk 21 of the BMAC (Bactria-

Margiana archaeological complex), stating that the samples showed signs of deterioration. Nyberg leaves open the possibility that soma/haoma may have been pressed from more than one plant, which, according to Flattery, is simply a statement of the fact.

Parpola attempts to integrate archaeological and linguistic evidence to create a possible scenario for the origins and spread of the soma/haoma ritual. Parpola concludes that the soma cult was introduced to Bactria and Margiana by the Vedic conquerors of the *Dāsas,* whom he connects with the BMAC temple-fort of Dashly-3, and proposes that the use of *Ephedra* came from the Andronovo culture, perhaps from as far east as the Tien Shan (and the Tarim Basin). He notes that the early Andronovo culture was highly stratified. The Andronovo, near the southern Urals, were the first chariot culture, and were metallurgists, producing weapons of many kinds. Parpola cites parallels between the BMAC, Mycenae, the Proto-Indo-Aryan Mitanni empire in Syria, and goddess-worship in eastern India. Interesting stuff, all, and the unraveling of the story will undoubtedly continue.

Erdosy investigates various modes of language change in northern India, and uses examples from other cultures. He makes the point that cultures have a kind of *shape*—a particular way a given culture relates with outsiders. Some cultures cannot accept outsiders within their fold, but themselves are able to assimilate into another culture easily. The genius of the Indo-Aryans was their ability to incorporate a wide variety of other cultures within their own framework *without dishonor to the newcomers.* Their stratified, khanate-based society was a perfect fit for the Harrapan culture that was already in a process of localization. The presence of Dravidian retroflex phonemes in Old Indic is evidence of a period of extensive bilingualism. More, it means that it was the people who spoke Indic as a second language, pronouncing it with their native retroflex phonemes, who were the primary dispersers of the language. That is, more children learned Indic as a first language from those who spoke it as a second language than from native speakers. India is a case of absorption more than assimilation.

In the case of the Mitannis, it seems that a small number of ruling elites were able to take charge of the established Hurrian civilization around 1500 to 1200 BCE. That the Mitannis were Indo-Aryan, rather than Indo-Iranian, is shown by the presence of Mitra, Varuna, and Indra. A Mitannian named Kikkuli wrote a book on horse training for the Hittites.

p. 141: I originally had a rant here about the cost/benefits of so-called "risk" protection, and used airport security as my example—what is the cost of all the time spent waiting in airports—all of the millions and millions of extra hours wasted when there is no "clear and present danger"? Since, after the World Trade Center catastrophe, the danger is indeed clear and present, I took the paragraph out. On the other hand, though, what good did all of that extra "security" do us?

In 1994 the DEA eliminated the "threshold" for reporting sales of ephedrine. United States companies must now obtain identification ("two forms of identification—and we will only ship to the address on your driver's license") from customers wishing to purchase any quantity of ephedrine. The Methamphetamine Control Act of 1996 established fines of up to $250,000 for any company that sells a chemical or piece of apparatus (such as a three-necked flask) to a person who uses them to manufacture "or attempt to manufacture" a controlled substance. Iodine has been added to the list of precursor chemicals.

An internet site for a law firm has the headline "Ephedra use has been linked to stroke and heart attack," and invites anyone who has had adverse effects to ma huang to contact their personal injury lawyers. The FDA states that since 1994, ephedra may be involved in forty deaths, all seemingly related to high blood pressure.

Khat

Torsten Wiedemann (2002) has brought to my attention that the degradation of cathinone into cathine may have nothing to do with enzymes, but may be a result of keto-enol tautamerization. Briefly, the proton on the alpha carbon migrates to the beta carbon, forming a hydroxyl group and a double bond between the two carbons. These two forms exist in equilibrium. While the ketone is the more stable, the presence of a base (and water and heat) shifts the equilibrium to the enol form, thus explaining why early acid-base extractions failed to recover any cathinone.

Further complicating the picture, Alexander Shulgin (2002) points out that the regeneration of the ketone would be racemate, since the double-bonded enol would not be optically active. Shulgin also notes that amino groups attached to a methylene carbon can be very reactive, depending of basicity, temperature, and environment. Shulgin dryly wonders how the compound can exist at all in the plant, and suggests as an answer to his own question that the base forms a salt-like interaction with native acids in the plant. For, despite all the above, cathinone most certainly does exist in the plant, accounting, in fact, for more than two-thirds of the total phenylalkylamines, and all in the (-) form.

p. 147: *The Observer* (Sept. 9, 2001), in an article titled "Children's drug is more powerful than cocaine," reported Brookhaven National Laboratory findings through brain imaging research that Ritalin, taken by more than four million children in the United States, is more powerful at blocking dopamine transporters than is cocaine. A normal dose of Ritalin given to children blocks 70 per cent of the dopamine transporters, leaving a surfeit of dopamine, whereas cocaine only blocks around 50% of the transporters.

Amphetamine

p. 153: Proving that the demonization of the "reefer madness" of the 1930s is alive and well, the *Los Angeles Times* (May 7, 2001) carried a front page article headlined "Meth Lab Upsurge Fuels Child Abuse." The article led off: "There was the baby left in the trash bag. The little girl raped after her first birthday. And the tortured 7-month-old, her tiny face pocked by cockroach and rat bites and her body riddled with bedsores so infected that doctors had to remove part of her leg. All the incidents happened in the desert. All the parents used meth."

Huh? I hope that readers will not consider my doubts to be unpatriotic. The point of the article was to push a new bill which would enable authorities to take away the children of parents who used methamphetamine. A Sheriff's Department Sgt. was quoted as saying: "We used to call an uncle, aunt, grandpa or friend to collect the child. What we found, though, is that they were continuing to be a victim. All we'd done was put them back in a worse situation than they were already in."

Huh?

Coca p. 173: Coca wars. Since September 11, 2001, it no longer seems necessary to label counterinsurgency as "fighting drugs." In fact, government propaganda is trying to make the war on drugs, the war on terrorism, and counterinsurgency all synonymous. President Bush has now labeled the Taliban regime as "drug traffickers," despite the fact that the Taliban had ruthlessly suppressed the growing of opium poppies. The Bush administration, in fact, had rewarded the Taliban for their success with a gift of $43 million dollars just four months before 9/11. It is interesting to note that all the large poppy fields in the country were controlled by the Northern Alliance.

GET HOT
-keep moving
DON'T WASTE
A PRECIOUS
MINUTE

I can't help quoting from Robert Scheer's column (*Los Angeles Times*, May 22, 2001) titled "Bush's Faustian Deal with the Taliban":

> *Enslave your girls and women, harbor anti-U.S. terrorists, destroy every vestige of civilization in your homeland, and the Bush administration will embrace you. All that matters is that you line up as an ally in the drug war, the only international cause that this nation still takes seriously.*
>
> *That's the message sent with the recent gift of $43 million to the Taliban rulers of Afghanistan, the most virulent anti-American violators of human rights in the world today. The gift, announced last Thursday by Secretary of State Colin Powell, in addition to other recent aid, makes the U.S. the main sponsor of the Taliban and rewards that "rogue regime" for declaring that opium growing is against the will of God . . .*

Scheer prophetically concludes:

> *The Taliban may suddenly be the dream regime of our own drug war zealots, but in the end this alliance will prove a costly failure. Our long sad history of signing up dictators in the war on drugs demonstrates the futility of building a foreign policy on a domestic obsession.*

p. 158: *"The psychic effect . . ."* compare with warnings on page 139 in *P/Poeia*.

p. 169: Thanks to Robin Atwood for the Pryor quote.

Wandering Drawings, pictographic renderings, and the painting on p. 191 by the author.

MDMA

p. 204: Related substances: a new empathogen of promise is methylone (3,4-methylenedioxy-methcathinone). Methylone is methcathinone with the distinctive MDMA methylenedioxy ring. It carries a stimulating euphoria, along with much of the empathogenic heart opening of MDMA, without, in some people's experience, melting one into a vibrating slug of love in the mush pile. There is a long stimulant tail, and a beautiful next day.

p. 207: Regarding protection against axonal degeneration by fluoxetine (Prozac): the use of l-deprenyl, a monoamine oxidase-B inhibitor, also significantly reduced 5-HT terminal damage in rats (Sprague and Nichols, 1995). The authors of the paper suggest that deamination of excessive dopamine within the 5-HT terminal generates hydrogen peroxide, which may be responsible for the damaging oxidative results from MDMA.

The hypertensive crisis that could possibly (and sometimes does) occur after combining an MAO-I such as harmine with MDMA can be effectively treated with phentolamine. Dr. Alan Cohn suggests that those experimenting in this dangerous area carry nifedepine (Procardia) in case of an emergency. Thorazine will help in a pinch.

p. 208: Several million ecstasy users, with much more experience than myself, will find my cautions to be overstated.

p. 210: MDMA researcher Dr. James O'Callaghan (Spartos, 2001) points out that MDMA and Adderall (a prescription amphetamine given daily, or twice daily, to millions of children in the United States) carry similar risks.

p. 216: Almost every drug can cause fatal reactions in certain people. It is known, for example, that people with a deficiency of the liver enzyme P450 2D6 can be excessively and dangerously sensitive to MDMA.

"Sell a glowstick, go to prison," (Brown, 2001). DEA agents in New Orleans arrested club owners, citing the presence of glowsticks and pacifiers as evidence of drug trafficking. The American Civil Liberties Union fought the case and won. Again, public health is clearly not the issue here.

The National Drug Intelligence Center, an arm of the Department of Justice, is pursuing a strategy to monitor and infiltrate music, dance, and drug information web sites. The report states that their target should be five types of individuals who disseminate information on the web: drug offenders, drug-culture advocates, advocates of an expanded freedom of expression, anarchists ("the presence of these individuals on the Internet is a known fact"), and "other lawbreakers."

It is sometimes difficult, given such outrageous behavior by government officials, to maintain what the Dalai Lama calls "loving compassion." Like all of us, these beings also swim in ignorance, and surely many of them believe they are doing good work.

On the science front, researchers at Cambridge University found that they were able to kill 238 mice with a combination of methamphetamine and loud music.

Say . . . what?

GHB

p. 221: Cases of GHB habituation and dependence have become more common in the first two years of the new century. Karen Miotto and Brett Roth (2001), two physicians who have treated GHB withdrawal, characterize the syndrome as being similar to alcohol withdrawal (delirium tremens) and benzodiazepine withdrawal (long duration of symptoms). This is not surprising as all three of the drugs cause down-regulation of inhibitory GABA receptors. The syndrome appears to be manifested in patients who have self-administered GHB on a round-the-clock basis (every 2-3 hours) for several to many months. Treatment often requires high dosages of sedative-hypnotics and physical restraints. (On the other hand, many have quit on their own, either by tapering or by going cold turkey.)

But it doesn't sound like fun. Symptoms begin very quickly, including anxiety, insomnia, tremor, and episodes of tachycardia, and can move on to uncontrolled delirium. These symptoms can last for a week or more, and episodically for even longer. Malaise and that "not quite right" feeling can last for months.

The Miotto-Roth paper is available online at www.erowid.org.

Dream Stutters

p. 231:

Altogether too strident and provocative.
Your grandstanding is shameless.
Where's your compassion, where's your insight?

Birds chirp, and it's morning.

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COFFEE

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Books Relating to STEALING FROM TOMORROW

There are many ways to steal from tomorrow.

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CREDITS

I. AUTHOR'S ACKNOWLEDGMENTS

I would like to particularly thank the following people for reading the manuscript, noting errors and inconsistencies, or for contributing to the project in other substantial ways: Joel Alter, Robin Atwood, Bret Blosser, Stephen Buhner, Julia Carter, Scott Clements, Anne Dutton, David Flattery, Robert Forte, Nelson Foster, R. Edward Grumbine, Kathleen Harrison, John Lucas, Laura McCarthy, Rob Montgomery, Randy Nathan, David Presti, Daniel Alvin Schulke, Amy Tavitas, Halleluia Thunderpussy, Michael Turelli, Nika Turelli, Paul Vigil, Peter Lamborn Wilson, and the Oracular Madness Ensemble. Remaining mistakes are mine, not theirs.

Sincere thanks to my editors, Thomas Christensen and Jeremy Bigalke, who volunteered months of their time and effort to bring this book to completion, and my indexer, Michael Brackney.

II. ILLUSTRATIONS

We have attempted, again, to designate artist's or owner's "official" titles by quotation marks, while titles assigned by others are indicated by initial capitals with no quotation marks. Page references are provided in parentheses following titles.

◆

Preliminaries The repeating decorative border is a frontispiece printed by Philippe Pigouchet, Paris, 1498. Title page illustration (iii) designed by Tom Christensen and Jeremy Bigalke; "Creation of the World" (vi), Hieronymus Bosch, c.1500; tree face (viii), source unknown; "The Ancient of Days" (3) by William Blake, metal relief etching, 1794; Hesiod guided by his muse (4), engraving for the *Theogony* by Georges Braque, c. 1932; angel woodblock (6) by Thomas Christensen; "The Nightmare" (8) by John Henry Fuseli, 1785–1790; clock image (11) is from *Britten's Old Clocks and Watches and their Makers,* seventh ed. edited by G.H. Baillie, F.B.H.I., C. Clutton, F.S.A., & C.A. Ilbert, F.B.H.I. 1956, Bonanza Books; "The Four Horsemen of the Apocalypse" (12), Albrecht Dürer, 1498; "The Clockmaker" (14), Jost Amman, 1568.

Coffee Coffee plant (15) from Strässle's *Naturgeschichte,* Stuttgart, 1885 (in Ernst and Johanna Lehner: *Folklore and Odysseys of Food and Medicinal Plants,* 1962); Clearing photograph (19) by Eadweard Muybridge, Guatemala, 1875; calligraphic leaf (20), 19th century, Turkey, gold on tobacco leaf, source unknown; Maxwell House newspaper advertisement (22), 1933; coffee beans (22) photograph by Thomas Christensen; *Slave Market with the Disappearing Bust of Voltaire* (23) by Salvador Dalí, oil on canvas, 1940; first Parisian coffee stall (24) from a French engraving, 1672; Coffeehouse (27) by George Grosz, photolithograph, 1918–1919; *Fur-Covered Cup, Saucer, and Spoon* (29), Meret Oppenheim, mixed media, 1936; Nineteenth-century coffee grinder (31); Coffee House in Colonial America (32), engraving by Alfred Bobbett; poster for opening of Café Voltaire (34) by Marcel Slodki, Zurich, 1916; *Rousseau in Armenian dress* (35) by Allan Ramsay, oil on canvas, 1766; cover illustration from Spanish-language edition of Miguel Angel Asurias, *Hombres de Maiz* (37); cover of early City Lights edition of *Howl,* this edition late 1950s–early 1960s (39); coffee (40) from Franz Eugen Köhler, *Medizinal-Pflanzen in naturgetreuen Abbildungen mit kurz erläuterndem,* 1887; "Honoré de Balzac" (42) by Ralph Barton, 1928.

Tea Tea Plant (45) from Strässle's *Naturgeschichte,* Stuttgart, 1885; transporting bales of tea by sampan (46) from Massachusetts Horticultural Socitey, in Derek Maitland: *5000 Years of Tea,* 1982, Gallery Books; tea leaf decoration (47), Ironstone pottery tea leaf decoration, England, 19th century (by mid-century more than a dozen English factories were making this pattern, and by the 1870s, it had spread to many other countries); Thomas De Quincey (48), 1840, source unknown; Hakuin, Daruma (Bodhidharma) (49), Japan, 18th century (Hakuin painted many Daruma portraits); tea vendors (50) "CFW Publications," in Maitland, as above; tea labor (51) source unknown; pages from Chinese edition of Lu Yu's Ch'a Ching (The Classic of Tea) (52), first published c. 780 AD; Ch'ing dynasty teapot, China (54); image (57) from Chanoyu kaiga shiryo shusei ("Compilation of Materials on the Tea Ceremony," a Japanese-language anthology); woman drinking tea (58) Japanese print; image (59) from Chanoyu kaiga shiryo shusei ("Compilation of Materials on the Tea Ceremony," a Japanese-language anthology); design for transom (ramma) of the Sangetsu-tei Tea Hut at Omotesenke, Kyoto, Japan (60), by Sen Rikyu (1522–1591); image (61) from Chanoyu kaiga shiryo shusei ("Compilation of Materials on the Tea Ceremony," a Japanese-language anthology); the Clipper Cutty Sark (62), oil painting, Museum of America and the Sea, Mystic Seaport, Connecticut; Tarot card (63) from Arthur Edward Waite, *A Pictorial Key to the Tarot* (1910); tea harvest (65), source unknown; *The Cup of Tea (Portrait of Lydia)* (66), Mary Cassatt, 1879, oil on canvas, Metropolitan Museum of Art, New York; A Mad Tea Party (68) by Blanche McManus, A. Wessels, New York, 1900; another mad tea party (69) by Harry Rountree, William Collins, London, 1928; tea box from occupied Japan (71), source unknown.

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Guatemala. The figure on the left carries “ear flowers” used in flavoring chocolate; Huitzilopochtli and the Serpent of Fire drawing (80) by A. Villagra, in Ignacio Bernal, *Mexico Before Cortez: Art, History, and Legend,* 1963; cacao bloodletting image (82), source unknown; cacao tree (85), Benzoni, from *Historia del Monde Nuova,* 1565; cacao (86), Jean-Baptiste Labat, 18th century; Cacao god (88), bowl engraving, Maya, Classic period, Dumbarton Oaks Collection, Washington, DC; cacao native (90), bontekoe, *drey neue tractagen,* 1688; Indians fleeing the approach of Columbus (92), from *De insulis inventis epistola Cristoferi Colom,* Basel, 1493, British Library; Fray Sahagun, “Cacauaxochitl: Quararibea funebris,” (94) in Florentine Codex: The Conquest of Mexico, Book 12. The image is thought by some to represent Theobroma angustifolium DC, one of the important cacao plants; cruelties of the Conquistadores (96), illustration by Théodore de Bry for the Latin translation of Bartholome de las Casa’s *Brevissima Relación,* Frankfurt, 1927, Bibliotèque Nationale, Paris; de Sade (97), source unknown; Eighteenth-century chocolate manufacture (99), in Denis Diderot and Jean d’Alembert, *Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers, par une Société de Gens de lettres,* Paris, 1751–1772; *Shamans in Three Poses* (100), Petrus Simon Pallas, 1771–1776; Faust’s Vision of Gretchen on Walpurgis Night (102) by Eugene Delacroix, lithograph, 1828; Walpurgis Night (105), source unknown; Cadbury image (107), commercial illustration.

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Ephedra Mahuang woodcut (127) from Read, Bernard E., *Chinese Medicinal Plants, Ephedra; Flora Sinensis C, XXIV. I.,* 1929, Peking Union Medical College (translation of Tu Shu Chi Ch’eng); *Une Semaine de Bonté* (130), detail from sketch by Max Ernst, 1934; Togolok (131) from Sarianidi, V., 1992, Drevnii Merv, Moscow, KPYK; vase (133), source unknown; Ephedra Trail map (136) by Dale Pendell, after Barber (Barber, Elizabeth Wayland. 1999. *The Mummies of Ürümchi.* Norton); chariot tarot image (137) by Michael Goepferd and Brian Williams: *The Light and Shadow Tarot,* Destiny Books, Rochester Vermont, 1997; Terracotta figurines (138) by P’yankove, L. “Central Asia in the Bronze Age: sedentary and nomadic cultures,” *Antiquity* 68:355-72. Figures are from Southern Turkmenia (left to right): Altyn depe (Developed Bronze Age), Kara depe (Late Eneolithic); BMAC seals and amulets (139 and 140) from P’yankove, L., as above.

Khat Khat bundle (143) is a bundle ("marduuf") of khat in the typical form sold on the market: tightly wrapped in banana leaves, from Elmi, Abdullahi S. 1983, "The Chewing of Khat in Somalia," *Journal of Ethnopharmacology,* 8:163-176; Khat bundles photograph (147) shows the contents of a "marduuf" of khat (ten smaller bundles), from Elmi, as above.

Amphetamine Defend freedom image (150) is a U.S. Government Propaganda Poster, World War II era; worry sketch (151), by Jeremy Bigalke; more production image (153) is a U.S. Government Propoganda Poster, World War II era; untitled image (155) by Donn P. Crane, illustration for *My Bookhouse* series Volume 3 (ed. Miller, Bookhouse for Children Publishers, Chicago, 1920).

Coca Erythroxylon coca (156), source unknown; untitled image (158) by Donn P. Crane, illustration for *My Bookhouse* series Volume 3 (ed. Miller, Bookhouse for Children Publishers, Chicago, 1920). Illustration for "The Fisherman Who Caught the Sun," a Hawaiian Legend; Coke boy (161), detail from Coca-Cola advertisement; Indian carguero image (162) from John Potter Hamilton, *Travels through the Interior Provinces of Colombia,* 1928: "View of the pass from Quindio, in the province of Popayan and cargueros (or carriers) who travel it." Reprinted in Taussig, Michael T. "Shamanism, Colonialism, and the Wild Man: A Study in Terror and Healing," University of Chicago Press, 1987; Sigmund Freud (165), source unknown; Shackleton (167), source unknown; Maya god (170) from *The Ancient Maya,* 3rd Edition (Morley & Brainerd, 1956). Pictured is Buluc Chabtan, a Mayan war and human-sacrifice deity; design for front cover of *The Yellow Book Volume 1* (171), Aubrey Beardsley, April 1894. Printed in black on yellow cloth boards. Private collection; CIA Sabotage Manual images (172): in the early 80s the CIA published a sabotage manual and distributed it throughout Nicaragua. The anti-Sandanista pamphlet is full of tips on bringing down the infrastructure of the country. Title page text: "Practical guide to liberating Nicaragua from oppression and misery by paralyzing the military-industrial complex of the traitorous Marxist state without having to use special tools and with minimal risk for the combatant." These images are provided by Weed at smog.net; New York Society for the Suppression of Vice image (174), c. 1870, is explained at drugwar.com/propoganda.shtm; wisdom eye (176) from symbols.com, redrawn by Jeremy Bigalke: a sign called the eye of the medicine man, synonymous with *wisdom* and *awareness* for some Indian tribes in the south western USA.

Stealing from Tomorrow Crackpipe sketches (180) by Dale Pendell; "Death and the Gentleman" (181) from *Der Doten Dantz* (Dance of the Dead), printed by Heinrich Knoblochzer, Heidelberg, 1490; reprinted in Ernst and Johanna Lehner: *Devils, Demons, Death and Damnation,* Dover, 1971; "The Conqueror Worm" (182) by Frantisek Kupka, c. 1900. Based on poem "The Conqueror Worm" by Edgar Allan Poe. Bibliothèque Nationale, Paris, France; Purification symbol (183), drawn by Jeremy Bigalke; "The Fall of the Magician" (detail) (183) by Peter Bruegel the Elder, 1564.

Wandering Marginal sketches (throughout) by Dale Pendell; shaman image (185) is a wooden sculpture of a long-haired shaman, attributed to the Caddo, an agricultural people that once inhabited portions of Texas, Arkansas, and Louisiana in the extreme southeastern Plains. 6½" high. Eighteenth century. Smithsonian Institution. Permission requested from Rizzoli International Publications; woodcut print (184) from The Eclogues of Vergil by Aristide Maillol, c. 1926 (from: *P. Vergili Maronis Ecolgae & Georgica latine et germanice / volumen prius Ecolgae // Vergilius Maros Ecolgen und Georgica in der Ursprache & deutsch / Band I: Die Eclogen // Vergili Eclogae: recognoverunt Thomas Achelis et Alfred Koerte / ornaverunt A. Maillol et E. Gill / impressit Harry Comes de Kessler in aedibus suis Cranach Presse Vimariae anno MCMXXVI // Die Eclogen Vergils in der Ursprache und deutsch übersetzt von Rudolf Alexander Schroeder: mit Illustrationen gezeichnet und geschnitten von Aristide Maillol),* also reprinted in Dover Publications, New York, 1979; polar bear handle image (187) is an ivory dog-sled handle in the form of polar bear cub, carved by Bering Sea Eskimo, 1870–80. Peabody Museum of Natural History, Yale University. Permission requested from Rizzoli International Publications; "The Revelation of St. John" (*Die Heimlich offenbarung iohnis*) (detail) (189) by Albrecht Dürer, printed 1498: "The Angel with the Key hurls the dragon into the abyss . . ." (Rev. XX, 1–3; XXI, 9–12; XXII, 8); landscape (190) by M.C. Escher, 1921, permission requested from Cordon Art, Netherlands; Sumi painting (191) by Dale Pendell.

Cleansing the Temple Serpents image (196) from Hammer Purgstall: *Mémoire sur deux coffrets gnostiques.* In *Psychology and Alchemy* Jung called this drawing "Pagan rites of transformation in the Middle Ages, with serpents." Huh? It's SO typical of Jungians to call a Hebrew story "pagan." And "transformation"? Gimmeabreak; Holy family image (197) is Shiva, Parvati, and their children on Mount Kailasa. Drawing from the Punjab Hills, Kangra style, c.1800. Permission requested from Harvard University Press; gnostic serpents (198) sketch by Dale Pendell; Kali image (198) commercial print; Camels in the Sahara (199) from a woodblock print by Jeremy Bigalke.

Nutmeg Nutmeg (200) from Mattioli's Commentaries, *Lyons,* 1579; nutmeg traders in the Banda Islands (202), c. 1599, source unknown (local merchants added grit to their spices to increase the weight and swell their profits. "Have you a great care to receive such nutmegs as be good," Lancaster warned his merchants, "for the smallest nutmegs be worth nothing at home"); the Banda Islands (203), source unknown. Run Island, marked Pulorin, is on the extreme left; nutmeg tree (204), artist unknown.

MDMA MDMA formulae (207) from Erowid, 1999; snake goddess image (208) is *Asavari Ragini,* Bundi, c.1790 (detail), opaque watercolor, gold, and ink on paper. A woman in the communing with cobras. Permission requested from the Los Angeles County Museum of Art; "The Physician's Tale of a Young Man Loved By Two Sisters" (209): illustration by Kay Nielsen for the Arabian Nights tale, private collection; fumando (211) sketch by Jeremy Bigalke; untitled woodcut print (212) from The Eclogues of Vergil by Aristide Maillol, c.1926, as above; "Group Kiss" (214), Crane, is an illustration for the story "The Swineherd" by Hans

	Christian Anderson; "Hermes Bird" (216) from *Theatrum chemicum Britannicum* (1652): the *prima materia* as the dragon, being fertilized by the Holy Ghost; skulls (216) and trident (217) by Robert Beer: *The Encyclopedia of Tibetan Symbols and Motifs,* Shambhala, 1999; "The Scapegoat" (218) M.C. Escher, woodcut, 1921. Premission requested from Cordon Art, Netherlands. Krishna subduing Kaliya (219), image from Northern India, perhaps Benares. 19th century. Permission requested from Harvard University Press.
GHB	"The Land of Cockaigne" (detail) (222) by Peter Bruegel the Elder, 1567; "The Lake, the Sleeping Water" (224) by Leon Frédéric, 1898. This painting is the right hand panel of the triptych "The Stream." Musées Royaux des Beaux-Arts de Belgique, Brussels, Belgium.
The Gift	Revelation sketch and critic watercolor (227) by Jeremy Bigalke.
Dream Stutters	Quijote and Sancho (229) by Gustavo Doré for *El Ingenioso Hidalgo Don Quijote de la Mancha,* by Miguel de Cervantes; "the return" (231) originally appeared in 1882 in *Grimm's Fairy Tales* translated by Lucy Crane and illustrated by Walter Crane.
References	"At the Edge of the Forest" (232) by Gustave Doré for Dante's Divine Comedy, 1857. Text accompanying: "Midway upon the journey of our life / I found myself within a forest dark, / For the straightforward pathway had been lost." (*Inf.* I, 1–3); Indian tea ship shadow image (235), source unknown; Tlingit shaman's rattle (237), c.1800. Private Collection. Permission requested from Rizzoli International Publications; Tibetan symbol for the *origins of the universe* (239), redrawn by Jeremy Bigalke, shows a seed of the universe rotating clockwise in the spiral of potential energy; Amphetamine warning symbol (251) redrawn by Jeremy Bigalke; "Don't waste a minute" image (252) is a U.S. Government Propaganda Poster, World War II era; untitled watercolor (254), detail, by Neil G. Greene, 1998; "Vision of Faust" (266) by Luis Ricardo Falero, painted in 1878. Also known as "The Departure of the Witches." Faust's reaction to these figures with tiny eyes, sharp claws and slimy hands is one of disorientation asking "Are these the ones who lost themselves, believing Satan's Lies?"; untitled fairy illustration (267) by Donn P. Crane, for *My Bookhouse* series Volume 2 (ed. Miller, Bookhouse for Children Publishers, Chicago, 1920).

III. TEXT CREDITS

Revolutionary Letter #5, in *Revolutionary Letters,* Diane Di Prima, 1971, City Lights, used by permission. The chapter on Catha edulis was first published in Entheogen Review. Parts of the coffee chapter appeared in Whole Earth.

"Hecate's Garden" and parts of the MDMA chapter were performed at the Mind States conference in Berkeley in 2001 with the Oracular Madness Choir.

INDEX

An index for volume I, Pharmako/Poeia, *is available through Mind Books (http://www.promind.com/bk_pki.htm)*

NOTE:
Dashes introduce sub-subheadings of preceding subheadings. Page numbers in italics indicate illustrations. Page numbers followed by *def* indicate definitions. Page numbers followed by *q* indicate quotations. Page numbers followed by *w* indicate works cited. Page numbers followed by *(2)* indicate two discussions. Page ranges followed by *passim* indicate multiple discussions.

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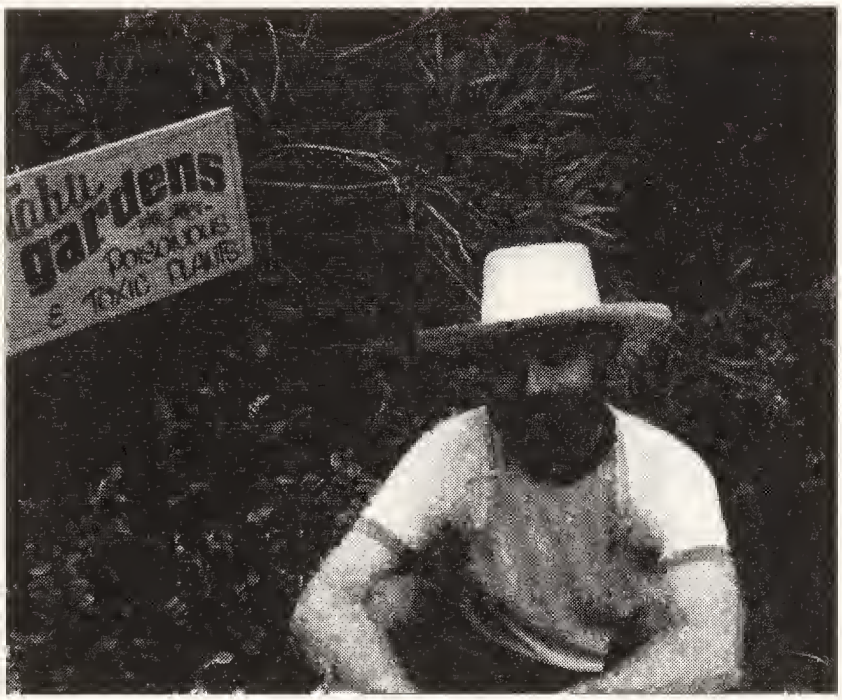

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Dale Pendell supports the Green Ribbon campaign to free the green prisoners. DIY.

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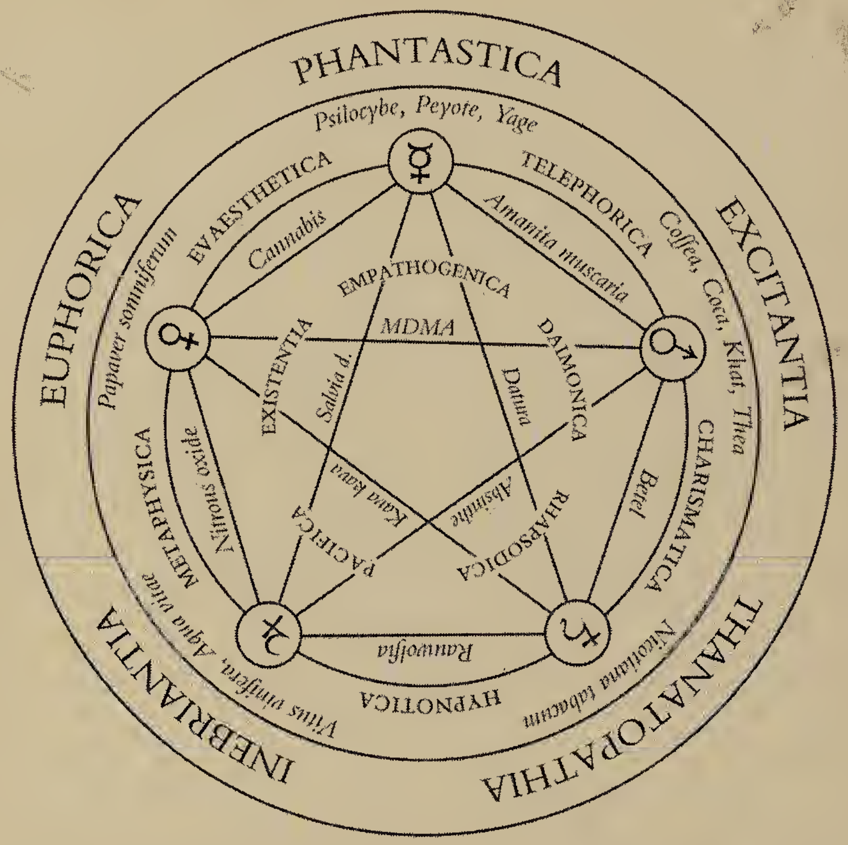
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ISBN 978-1-55643-888-2